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Pneumonia in General Practice.*

By E. Porter-Smith, M.R.C.V.S., Lincoln.

FORMS.—(*a*) Acute lobar pneumonia, affecting either one or both lungs ("double pneumonia"); (*b*) broncho-pneumonia, affecting different lobules or smaller and more scattered areas of the lung and, I think, generally associated with irritation of and inflammation of the bronchial tubes and, fairly frequently, with pleurisy; (*c*) interstitial or structural pneumonia.

KINDS.—Idiopathic, and contagious or infectious.

CAUSES OF IDIOPATHIC.—Bad sanitation. Continued extremely inclement weather, such as sudden frost and east winds; continued wet weather; rain, snow or fog combined with anything that reduces an animal's powers of resistance—for instance, debility following over exertion or disease in any other form. Nervous shocks and accidental violence to the chest, causing traumatic pneumonia. Drenching through keeping the head and nose too elevated, or drenching while the animal is unconscious, or not releasing the head when the animal coughs. Hypostatic pneumonia is seen during paralysis of the limbs and prolonged maintenance of a recumbent position, also in acute rheumatism or as a complication of other diseases.

HISTORY.—Horses galloping out of condition; extending a tired animal; continued overworking in certain contractors' animals employed in carting, or on urgent work requiring speeding up all round, the horses having to work long hours. Fast work following a heavy meal and following, or as a complication of, colic, lymphangitis, laminitis, purpura, hæmoglobinuria, tuberculosis or glanders and farcy.

In cattle, the causes are:—Young beasts running out at grass too late in the autumn at night, especially on low-land, where there may be flooding. Overcrowding of calves and housing them in frail flimsy buildings in winter during severe weather. Overfeeding of frozen roots, especially too soon after calving. Waterlogged crews and dusty fodder, such as badly got second crop clover or sanfoin hay.

The common causes in ewes are want of protection from exposure during severe weather and overdriving, more especially if close to lambing, and bad sanitation and overcrowding in the night pens.

STAGES.—Congestion, red hepatization, grey hepatization and resolution, or purulent infiltration abscess or gangrene.

SYMPTOMS.—The onset, following anything from two, three or five days' incubation, may be sudden—a few hours only, especially in "pink eye," where you get the acute croupous or lobar pneumonia. A horse going to work apparently all right, comes home with the others, refuses his food, shivers and rigors occur quickly and temperature is found to be even then as high as 106° F., and this within a few hours, as far as the attendants have found him to be sick. There are excitability or depression (either of these) and cold extremities, the animal lifts in the flanks and sometimes breathing is accelerated. Pulse is increased in frequency in early stages, soft and bounding. Visible mucous membranes are injected; there is tenderness of the chest wall on palpation. Auscultation reveals increased sounds followed by crepitation, ending in loss of sound and then rhonchus or râles and renewed crepitation; this latter during resolution and recovery. There is a watery discharge from the nose, quickly followed by mucus, yellow or sanguineous; this is a rusty colour if long continued and is a very grave symptom and occasionally precedes hæmoptysis or hæmorrhage of one or both lungs.

The sequent symptoms I will pursue while relating my treatment. I must here apologise for not giving the causes of contagious or infectious pneumonia before, as, of course, the symptoms of both kinds are very much alike, as is the treatment. The causes of the contagious and infectious forms are, of course, obvious to all of you, and, as such, I merely mention them. I understand they are three or four in number—the pneumococcus being responsible for a big percentage of cases, more especially in the acute lobar contagious form occurring in "pink eye," influenza and strangles in horses, swine fever in pigs. Septic pneumonia comes under the heading of contagious and also the pneumonia in distemper in dogs. Anything reducing the opsonic index of the blood is a predisposing cause and the reason why, during infectious diseases, some animals escape, theirs being high.

Broncho-pneumonia.—I find this form more common in conjunction with influenza of horses and by far the commonest form in cattle.

Interstitial or Structural Pneumonia.—I am afraid I have only come across this on making *post-mortem* examinations in long-standing and fatal cases of broncho-pneumonia in cattle. In this, some parts of the lung are collapsed and there is a consequent loss of sound owing to the blocking of the bronchioles with broken-down tissue and mucus; other parts, in compensatory effort, become emphysematous. I have seen a few cases of *post-mortem*, where the lungs have been both extremely emphysematous and much increased in volume—ballooned.

TREATMENT.

The large and airy loose box you cannot always find. I invariably impress on attendants the vast importance of good and continued nursing, constant attention, keeping the box clean, and I explain that because an animal does

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not fancy a certain food this is no reason why he should not be tried again with it; he does not care much for anything and needs to be coaxed and tempted continually, nothing being allowed to remain too long before him if he does not fancy it.

First of all in treatment, circumstances alter cases very considerably; whether an animal is in good condition, plethoric, or impoverished and distressed from over-exertion. If in good condition, an animal at grass possibly had better stay there. This depends on the atmospheric conditions, proximity of shelter and plenty of green food and good water supply not too far from the animal or the attendants' residence. All these being in evidence, if the temperature of the body is high I give a very light dose of physic and a stimulant, or prescribe an electuary of cinchona and carbonate of soda, the state of the bowels and the condition of the animal being the deciding factor. Physic for horses is always in a ball form, for beasts occasionally so, but generally in liquid form. Never liquids for horses, however, if breathing is distressed or increased in frequency. It is of vast importance that the aperient should not be too strong; I always notice the evacuations and enquire if there has been any recent diarrhœa and what medicines have been already administered, always remembering the sympathetic irritability of the alimentary tract. I have seen a pint of raw linseed oil cause supurpurgation in a four-year-old cart-horse. I do think it is important that there should be no obstruction of the evacuation of the bowel in the early stages of congestion, especially if you have the advantage of an early consultation by your client. I believe this is contrary to some teachings, but I can only say I used more physic in previous years, but even now I have given it in anything from fifty to one hundred cases of congestion and high temperature in a year that never reached a very serious form of hepatization and time has proved this to be correct with me, especially in the acute croupous contagious form. In horses, I prefer aloes; in cattle, sulphate of magnesia; in dogs, aloes, podophyllin, etc.

Counter-irritation.—If the temperature is high I apply this to the chest and throat directly after light physic, and if the temperature is not down a little in 24 hours, I repeat the counter-irritation once in horses and occasionally again in 72 hours, but this more often in cows. I am aware that hot packs are exceedingly efficient, but they need a considerable amount of labour and require to be applied with dispatch and very much more after-care; moreover, I think they are rather apt to weaken, if not unduly so, at any rate more than is smart counter-irritation. If the temperature at the third day is not a little lower, I employ quinine—in the influenza form occasionally on the second day on account of its gastric stimulation and stimulation of all mucous membranes, generally in conjunction with carbonate of ammonia, which I seldom use during the first 48 hours. I would now mention how important it is to keep a careful watch on the pulse and the heart beats, and when in doubt I use nux vomica or liq. strych. in the food and drinking water where the animal is, say, seven years or over. In cattle I use sulphuric æther and turpentine in conjunction with the strychnine as, with these animals, a heart stimulant is very necessary owing to their phlegmatic temperament. The only disadvantage is that it gets into the milk, which cannot at this time be used for human consumption and is dangerous to very young children. I repeat the aperient in cattle, where the temperature is high, in twelve, twenty-four or more hours, warning the attendant not to use the milk for the young calves. In young beasts, if inclined to be weak chested, I rely more in winter and spring on clothing the chest and give cod-liver oil in skimmed milk twice daily. Inhalations I employ in broncho-pneumonia, but seldom in lobar pneumonia. Steaming is very useful in post-nasal abscess, where difficult breathing may have nothing to do with the lungs and is not bad enough for tracheotomy. Used occasionally in broncho-pneumonia, it certainly clears the air passages and, combined with such drugs as eucalyptus, iodine and turpentine, is safe if there is no fear of gangrene.

Crisis.—An early one is, with me, a very favourable sign. If prolonged to the fifth day I think the chance of complete resolution rather remote. I do everything to hasten it. I allow nothing solid the first twenty-four hours, but give plenty of nourishing liquids. I have a preference for linseed tea, of course watching the evacuations and controlling the bowels with arrowroot, wheat flour gruel and bean and pea gruel, using eggs and starch if there is any danger of too loose motions.

If I think the stable is in for the contagious pneumonia form in horses, where it is possible in cold weather I get the owner to rest the lot and, getting a good hot copperful of linseed, scald bucketsful of bran three and four times a day, stopping all other forms of food. This is the quickest way out and, if the others get it, as a rule I find they are not quite so sick with it. If the horse is in a box, and it is possible, I have the box lime-washed as soon as the crisis is over and the animal looks like being convalescent. I have found this a good preventive of the gangrene of the lung which sometimes supervenes.

I have not had any great amount of experience with anti-pneumococcal serum, which I believe is prepared from the weaker strain of bacteria causing pneumonia, and so I place little reliance upon this form of treatment, but hope we shall hear something of it in the discussion.

I consider that pneumonia is a disease in which the younger practitioner can receive considerable benefit from the more experienced and thus endeavour to avoid the pitfalls which occur in the convalescent stages.

I like to see the crisis over and the temperature drop in three to five days, otherwise I think it is very unlikely to be followed by a favourable convalescence and a return to health and usefulness of the patient.

I find the broncho-pneumonic form more common in conjunction with influenza in horses and by far the commonest form in cattle, and my treatment is not so intensive as in contagious lobar pneumonia. In this form I sometimes employ inhalation—steam, in conjunction with menthol, eucalyptus and turpentine, especially if the throat is badly affected and swollen. I also rely much on an electuary containing belladonna, possibly glycerine, but always cinchona and carbonate of soda. My experience of nitrate of potash and chlorate of potash is very unfavourable and I only use these in very mild cases.

There is one further thing I should like to say about parasitic and contagious broncho-pneumonia in cattle. I have had one or two outbreaks of contagious pneumonia

in young beasts that had not been out at grass at all and so could not have picked up parasites. I do not know whether or not it is possible that the feeding of new seeds to them might be the cause, but whatever that might be it was a serious matter for the farmer to have eight or nine young beasts in his yard ill with pneumonia.

I have had a lot of trouble with this condition and have summed up the best treatment as being a small dose of oil to relieve the stomach, then sulphuric æther and turpentine in equal parts, 20 drops being given in a dose of carbolic acid; that is given with twice the amount of oil, two or three times a day. I have found that far and away the best treatment. I have made two or three *post-mortems* without having found any worms, therefore I much prefer this treatment to medication by intra-tracheal injection used in parasitic broncho-pneumonia in young stock.

An animal in which I am particularly careful about not using intra-tracheal injection is the young Aberdeen Angus, in which there is difficulty in getting the fluid into the trachea, owing to the restlessness and thick skin of this beast. I have had experience of losing a beast subsequent to an attempt to make such an injection.

These are only a few disjointed notes to try to induce some of you gentlemen, who have perhaps had greater experience of the condition than I, to give your experiences and I trust that in the discussion we shall hear some valuable opinions on this important matter.

Discussion.

Mr. J. W. Beaumont, in opening the discussion, said that the honour entrusted to him of opening the discussion on the very interesting and able paper presented to them by Mr. Porter-Smith was one that he accepted with a great deal of diffidence, particularly as he was a newcomer in their midst.

The subject, luckily, was one that had been studied by all of them in practice, and a mutual discussion of it was bound to be beneficial.

There was no disease presenting such a trail of hopes and disappointments in its course and treatment as pneumonia.

Their medical confrères regarded the disease as one of the most serious with which they had to contend; it claimed its toll in young and old alike, and the most robust succumbed to its ravages in the same degree as the enfeebled. When they realised the great advantages that their medical colleagues possessed in the nursing and care of their patients, the facilities available to them in the administration of oxygen and stimulants, the task of the veterinarian in dealing with the disease as it occurred in the domesticated animals was, in comparison, stupendously difficult. The waves of influenza that periodically swept through the country brought in their wake the deadly pneumococcus, which was the final slayer, and all the resources of medical knowledge often failed to combat it.

Another great difficulty veterinarians had to contend with was that of early and definite diagnosis. The aids their medical colleagues obtained from percussion and auscultation were not so favourably communicated to them, due to the presence of a heavy coat, a thick skin and the size and depth of the chest cavity; and, again, the local application of plasters, antiphlogistin and liniments to the chest wall could not be as effective as when applied to the human being.

Pneumonia appeared to be primarily a disease connected with domestication, and it was in those animals which had lived in warm, comfortable stables or byres that they found the greatest mortality when the disease made its appearance.

The subject had been so ably presented to them that it only remained for him to associate himself with them in congratulating Mr. Porter-Smith on his concise and clear exposition of the subject and to supplement and amplify, as far as possible, in so far as his own knowledge had brought him in relation to the problems associated with the disease.

In discussing that disease they often heard it said "I always give so-and-so"; in other words "I practise routine treatment." He was quite certain that routine treatment was contra-indicated. To practise routine treatment without any knowledge of the etiology of the disease, or making any attempt to determine it, was not to be encouraged. Before any treatment could be considered, an accurate diagnosis was essential. Consequently, the possibility of the existence of inflammation of other organs than the lungs, simulating pneumonia, must be excluded, *e.g.*, acute pericarditis and acute peritonitis.

The etiological type of pneumonia must be considered, *e.g.*, if acute, was it part of a generalised infection, as in the specific contagions, hæmorrhagic septicæmia, strangles, distemper, etc., or was it due to direct extension as in foreign body penetration from the œsophagus, stomach, or through a wound in the chest wall, etc.?

If chronic, was it due to infections such as tuberculosis, glanders, etc., or to strongyle infestation?

Once diagnosis was fixed, treatment should be addressed to (*a*) removal of the cause; (*b*) keeping up the animal's strength.

Removal of the cause, in the case of certain acute specific infections, demanded appropriate anti-serum therapy, *e.g.*, acute hæmorrhagic septicæmia serum, anti-streptococcal serum, etc. In the case of glanders, and other scheduled acute infections, notification under the Diseases of Animals Acts was required, while, of course, tuberculosis in cattle necessitated notification and possible slaughter. In the event of the presence of a foreign body, or wounds, surgery was demanded. Keeping up the animal's strength resolved itself into the establishment of the most favourable hygienic conditions, stimulating and maintaining the vitality and assisting in the elimination of the toxic products. Good nursing and good feeding were of the utmost importance.

Pneumonia was primarily an inflammation of the lungs; an infectious fever caused by the pneumococcus, and the route of infection being the air passages. The severity of the attack often had no relation to the extent of lung involved.

The period of incubation was uncertain, but was probably very short, one to two days.

Previous attacks offered no protection by immunity; in fact, they rendered the animal more liable to take it again.

The President had mentioned anti-pneumoccal sera; he (Mr. Beaumont) thought that he said that he had not much faith in it. There had recently been a re-grouping of pneumonia organisms, which were now placed in four main groups, and were known as Group 1, 2, 3 or 4, as the case might be. His experience was that if you could get an anti-serum made quickly, prepared from the same strain of pneumococci as were causing the condition from which your patient was suffering, you could anticipate a speedy and certain recovery. That was a bold statement, but a true one.

As soon as they had made their diagnosis they should take a two-ounce sterile bottle and send it up to the laboratory with material from which a serum could be prepared. In three days the serum would come back, and that was the surest and best treatment of which he knew. There was another treatment which was entirely new and which was being expounded at the present time by Professor Henderson, in America, while it was being tried out in Charing Cross Hospital; it was the administration of oxygen, combined with carbon dioxide. Professor Henderson's theory was just this: it was based on the interchange of gases which was taking place in the lungs. The speaker could not trace in his memory how Professor Henderson arrived at his conclusions, but his treatment was well worth looking up. Numerous drugs were used in pneumonia, and administered as electuaries, and by intra-tracheal, subcutaneous and intravenous injection, but his opinion of the use of drugs in the treatment of the

disease was not very favourable. He did believe in encouraging the elimination of toxic products, as did the President, by giving physic. One must also maintain the vitality of the patient as well as one could. Sometimes he gave solution of quinine intravenously and sometimes a solution of formalin, but he often wondered if he had done any good thereby.

He always insisted on the animal being brought out of the box in which it had been kept; if there was no good place on the premises, build one—as long as it had a roof and three walls that was all that was necessary. If the horse was out at grass, let it stay there.

In conclusion, he desired, on their behalf, to express his deep sense of gratitude to Mr. Porter-Smith, their President, for his most instructive and thought-provoking paper. (Applause.)

The President thanked Mr. Beaumont for his contribution in opening the discussion; it was evident that they had in Mr. Beaumont a great acquisition as a new member. (Hear, hear.)

He (Mr. Porter-Smith), had had no experience of anti-pneumococcal sera and for that reason felt himself unable to enlarge upon the subject. He should just like to say how grateful he was to Mr. Beaumont for supporting him in the manner he had done.

Mr. T. Hicks expressed his thanks to the President for the very able thesis he had just delivered and to Mr. Beaumont for the splendid manner in which the subject had been handled by him in his opening of the discussion, both of these gentlemen having dealt with it in a way which opened up many avenues of thought and experience for the rest of them to pursue.

Both of those gentlemen, however, rather differed from him; he was certainly in agreement with regard to using the vaccine if possible, and Mr. Beaumont's theory of taking a swab, sending it away and getting a vaccine made from it, was no doubt the best method; but in the ordinary routine case if one was called in early the condition could be relieved by the administration of drugs. In the first place, one was so often called to a horse with a temperature sometimes of 109°-110°, such as in congestion of the lungs, with the animal blowing and sweating profusely. In such cases, he carried out a line of treatment with which most of them would doubtless strongly disagree, but one which was handed down to him by his father, as follows :—

℞ Sodii hyposulph, ʒ ii.
Tr. Aconitii (Fleming), Mv.
Turpentine, ʒ i.

One dose of the above was given in a little *cold* milk. On 99 occasions out of a 100 one could go the next morning and find that the temperature of the horse had been very materially reduced, and often to normal. If one was called in later one gave antifebrin, quinine, camphor and tincture of digitalis; he gave them in such doses that the patient got half-an-ounce anti-febrin per day for two or three days, together with equal quantities of quinine and small doses of tincture digitalis. He always used as a base glycoheroin, instead of using treacle or glycerine, despite the drawback that it was so expensive. It undoubtedly relieved the bronchial tubes and breathing.

In a sense this might be deemed to be treatment of a somewhat routine type, but the necessity for careful examination and review of all the facts of each case robbed the procedure of any element of routine, and he thought that the prescription he had given them was well worth trying.

With regard to the use of strychnine, he was not in favour of it in the very early stages; he was perfectly convinced that strychnine given hypodermically or by the mouth in the early stages would cause a rise of temperature. In the later stages of the disease (the fifth or sixth day) the temperature would gradually begin to come down; then in his electuary he always put a fair dose of potassium iodide—that, he thought, prevented a number of undesirable sequelæ, *e.g.*, purpura hæmorrhagica.

Concerning the parasitic pneumonia in calves due to *Strongylus micrurus*, there was no doubt that an intra-tracheal injection stood out pre-eminently, but one wanted to give a drench with it; personally, he always gave a drench immediately following the injection. Of course, some people would say that he would choke them by that method; he liked them to cough, he knew that if they coughed the solution had reached the trachea and might do some good. His drench consisted of turpentine, æther meth., creosote, balsam of sulphur and ammoniated tincture of asafœtida. That drench, however, would cure the disease without the intra-tracheal injection, provided the animals were not too bad.

Treatment of strongylosis in sheep was similar but, of course, the doses were necessarily smaller. The reason he always put in the oil of creosote was that owing to its viscid nature it adhered to the mouth and pharynx and kept the medicaments in contact with the throat for some hours.

Mr. J. H. Poles said that he would like to add his measure of thanks to the President for his very able paper, and also to Mr. Beaumont for the excellent contribution made by him in opening the discussion. What they had heard had certainly been very instructive to all of them and he thought that there were very few points upon which difference of opinion could be expressed.

In connection with the occurrence of pneumonia in young stock that had never been out, he had had several cases one one farm, occurring every year, due to the *Strongylus micrurus*. In these cases he used the intra-tracheal injection, but he did not follow with the drench straight away, but in about three days. He generally found that method to be successful.

In cases of old-standing pneumonia he had obtained very good results from the intra-tracheal injection of iodine; he first commenced that method when he was assistant to a veterinary surgeon in London, many years ago, giving gr. vii-x iodine and repeating it in three days' time.

The President had mentioned the danger and difficulty of intra-tracheal medication in Aberdeen Angus cattle; he should like to ask him whether he meant that the difficulty arose from just that special breed of cattle, or did it apply to all polled cattle; if the latter, he took it that he meant that it was difficult to restrain them and thus to get the injection into the trachea; one could always tell if the injection had been successfully made if one could hear the animal breathe through the needle before attaching the syringe. He had carried out the process in many polled cattle, and it was certainly far more difficult to restrain them than it was horned cattle, but he had never experienced any untoward results.

Mr. A. D. Lalor enquired of the essayist what was the cause of the death of the Aberdeen Angus cattle following intra-tracheal injection; whether or not it was due to a growth in the trachea at the point of insertion of the needle when the animals were struggling, or something of that sort.

Captain K. J. S. Dowland, having congratulated the President on his paper, and the opener of the discussion, said that, so far as he could see, in pneumonia one had generally two distinct pathological entities to deal with—the croupous and the lobular.

His theory in croupous pneumonia was that the period of congestion preceding hepatisation was the time at which medicinal treatment was useful; he believed that when once hepatisation had occurred in croupous pneumonia, the shell had burst, so to speak, and one could only trust to nature and the strength of the natural resistance of the animal to overcome the results of the shell burst. On the other hand, in lobular pneumonia one was up against a spreading process; the disease was actively extending, and he thought that it was in such cases that serum treatment was most useful.

For information, he should like to enquire of the opener of the discussion to what extent the pneumococcus was involved in the pneumonias of animals.

Since he had been in Lincolnshire he had been trying the subcutaneous injection of oxygen; he had had one or two cases of the acute broncho-pneumonia one got following parasitic pneumonia, cases in which intra-tracheal injection had been practised once or twice without diminish-

ing the symptoms, and as far as one could tell there was a broncho-pneumonia which was active and extending. In these cases he had injected oxygen subcutaneously, bubbling it through warm water. The results were very good, so far as he was concerned, though the owner was very frightened by the crackling under the skin. (Laughter.) That struck him as being a useful line of treatment, particularly in pneumonias in which one was certain that extensive hepatisation had occurred.

He was glad that everyone had emphasised the difficulty of diagnosis. He had an extraordinary case the other day. He was called to make a *post-mortem* on a valuable dairy cow reported to have broken her neck, having been found dead in her stall in the morning. He found an old-standing disease of the heart, which was much enlarged, the heart wall being very thin, together with some hepatisation of the lungs, in his opinion indicative of old-standing pneumonia, a condition which had never been suspected during the life of the animal.

The Hon. Secretary (Mr. H. C. Reeks) observed that, with reference to the point brought out by Captain Dowland concerning acute pneumonia in which no lesion of the lung was suspected, in the past few years they had several outbreaks of very acute pneumonia when the condition of the lungs was only revealed on *post-mortem*. In other cases, lingering a little longer, symptoms developed which he was quite confident was very like those of hæmorrhagic septicæmia in cattle, although that condition, they were told, did not exist in this country.

Captain Dowland desired to add that the lungs of the cow to which he had referred showed a certain amount of the peculiar marbled appearance that one saw in hæmorrhagic septicæmia. He did not think of that at the time, however, because he had found that many of the pneumonias of cattle showed a certain amount of marbling. The hepatised areas were of different colours and were apparently of different ages, hence the opinion that the pneumonia was of some standing.

Mr. Reeks said that, although he had not had a case thus far this winter, he had so many the previous season that he fully intended to try the hæmorrhagic septicæmia serum.

Mr. R. Swaby said that on the preceding Monday he was called out to 70 fat cattle, 11 having died from Saturday to Monday. Five were killed when he arrived and they then killed another, and he at once got the impression that the disease was hæmorrhagic septicæmia. He was so struck with it that he had sent some of the organs to Dr. Hare at the Royal Veterinary College, in order to get his opinion, as he had been unable to demonstrate the presence of anthrax bacilli which, of course, he had had in mind as a possibility—these cattle were being fed on Russian barley.

[Dr. Hare has since reported he was unable to find any specific organisms and Dr. Clough has also sent a negative report for the presence of chemical poisons.—R. S.]

Captain Dowland expressed the view that marbling of the lung was peculiar to pneumonia of the ox. Quite apart from the question of hæmorrhagic septicæmia, there was one suggestion he should like to make. Those animals were being fed on a certain amount of chopped barley straw. The barley had been lying out last year and he wondered if there was something in the barley which might have been responsible. That was what happened in true cornstalk disease.

Mr. Reeks thought that they could now take it that cornstalk disease was really hæmorrhagic septicæmia, but Captain Dowland observed that the matter was still debatable.

Mr. Reeks stated that in cases which lingered for as long as three or four days, changes occurred in the lungs which were apparently identical with those seen in hæmorrhagic septicæmia; moreover, intestinal trouble also developed in addition to lung trouble.

Captain Dowland remarked that he had seen a lot of hæmorrhagic septicæmia in India, and in these one saw a great deal of swelling of the dependant parts, under the jaw and the dewlap. Not all the subjects of the disease showed this symptom, perhaps, but it was invariably exhibited by one or more animals in an affected herd.

Mr. Reeks added that there was a considerable amount of swelling of the dependant parts in one or two instances in the cases he had in mind. These were very difficult cases to explain to the owner.

The Replies.

Both the President and Mr. Beaumont replied to points raised in the discussion.

The President (Mr. E. Porter-Smith) said that Mr. Beaumont had given them a very good outline of the theory of anti-pneumococcal sero-therapy, and he (the President) certainly concurred with his opinions in regard to autogenous vaccines. Of course, that was the difficulty: he had always understood that an anti-pneumococcal serum was prepared from a mixed strain, and on that account he did not use it. It was a difficulty which arose particularly in connection with the treatment of croupous pneumonia in horses, a disease which swept through a stable with great rapidity; it was most alarming, moreover, to discover the condition in a horse which had shown no distress while at work: the rapidity of onset was remarkable, and one knew that one had to be rapid oneself if one was going to bring about any change.

He quite agreed with Mr. Beaumont and Captain Dowland as to the necessity of bringing about the crisis during congestion, if possible, before red hepatisation became very serious: it appeared to be the general opinion that if the case were prolonged until the stage of grey hepatisation was reached the prognosis was somewhat hopeless. It was perfectly true, also, that you never knew when you were finished with broncho-pneumonia: that was the reason for his preference for the use of an autogenous vaccine over that of anti-pneumococcal sera prepared from a mixed strain.

He was very pleased to hear Mr. Beaumont say that one must get rid of the toxins and septic matter in the blood by combining one's treatment in the congestive stage with a mild dose of physic, for it was not long since he had read, in the *Veterinary Record*, of a gentleman who gave a dose of physic when there was a rise of temperature, but who said that he had always been taught that one should not do that: from what he (the President) could gather there that day, the general opinion was that physic should be given.

[A Member: "That was Professor Williams' teaching, Sir."]

Proceeding, Mr. Porter-Smith said that he could bear out what Mr. Hicks had said in regard to aconite. In human practice years ago aconite was about the sheet anchor in the treatment of pneumonia, but in those days they had not got its bacteriology so well in hand. He was also very pleased to hear Mr. Beaumont stress the importance of good nursing: there was little doubt that the difference in the quality of the nursing available as between human and animal patients was a factor which told heavily against the veterinary practitioner in dealing with pneumonia.

Mr. Hicks had mentioned antifebrin, saying that he used fairly large doses of quinine and antifebrin. He (the President) had not had much experience of that treatment lately, though years ago he had practised it extensively in London studs. He remembered that one horse ran a temperature of 102° F. for something like three weeks. The animal had been attended by his employer, who was annoyed because he could not get the temperature down and who, when he sent him to see the case, told him that he had been giving antifebrin (it was called antipyrin in those days) for three weeks without effect. The speaker could corroborate what Mr. Hicks had observed in regard to quinine and digitalis, while he must thank him for his reference to glycoheroin, which he thought would be very useful.

He knew that in medical practice pneumonia cases were kept alive with strychnine: in horse practice it certainly made the breathing somewhat more laboured, but he had not found that it sent the temperature up. In his view, pneumonia was a disease in which the temperature was governed by the state of the blood, and if certain parts of the lungs were closed a rise of temperature automatically followed.

[Mr. Hicks: " I think I said, with regard to the use of strychnine, ' in the very early stages.' "]

He agreed with Mr. Hicks there: he never gave strychnine in the very early stages, but its use later on got the pulse and the heart going well and gave the animal a chance to pull round.

To hark back to what Mr. Beaumont had said, there was no doubt that good nursing gave the animal his chance of recovery, and one did not have to rely on drugs altogether. He had been struck forcibly, in outbreaks of influenza in town horses, by the beneficial effect of cleaning down the stable and white-washing the walls, if mortared: he did not know whether or not the increased amount of reflected light was responsible, but there was no doubt as to the improvement brought about in the condition of the animals thereby.

He was glad that Mr. Hicks supported his parasitic pneumonia treatment; his confidence in creosote was very well justified, for it had a powerfully antiseptic action on the blood and one which, as he said, was fairly prolonged.

In reply to Mr. Lalor, concerning the death of an Aberdeen Angus following intra-tracheal injection, he had no trouble in restraining them (a good pair of bull-dogs would keep them quiet) but the difficulty in that case was that it was an exceptionally fat animal and, as they would know, very short in the neck. Just as he had got the needle into the trachea and had duly noted the air emanating from the lungs through the needle, the beast moved, and as he was holding the needle very freely it came out and went in again—into one of the arteries. After the injection the animal staggered about for two or three minutes, and in about a quarter of an hour he had it killed. The great misfortune was that it was a pedigree bull. With a fat-necked animal that struggled the trachea receded somewhat when one endeavoured to insert the needle and that resulted in your hand being practically pushed away; then, when you tried to reinsert the needle, if you were not careful, you pushed it in again without due regard to where it was penetrating. He had no trouble with red polled cattle.

He was pleased to hear Mr. Poles say that he found pneumonia in calves to be due to parasitic infestation and that intra-tracheal injection was very successful: there was no doubt that that was the best form of treatment. Another form of treatment which was rather useful in older animals, and to which he was introduced by a client of his, was to get a tubular form of scoop and through it pour a measured quantity of neat turpentine to the back of the throat: that might stop the reflex irritation from the throat. He thought that the iodine treatment recommended by Mr. Hicks and Mr. Poles was very useful; in fact, he had found it to be the best form of treatment in cases of pneumonia associated with purpura.

Regarding Captain Dowland's case of accident, in which *post-mortem* disclosed old-standing broncho-pneumonia, he did not know what the experience of others might have been, but he had often been amazed, in the last few years, in making *post-mortems* on tuberculous cows, at the number of cases in which tuberculous abscess was found in the lungs when no evidence of its presence was forthcoming during life: he had frequently wondered how it was possible for the beast to have lived with so much pus in the chest.

Feeding on barley which had being lying out had been mentioned: a few years ago wheat was very cheap and farmers were feeding their cattle on it; at that time they had many cases of cattle going wrong through eating this wheat.

Captain Dowland had referred to the alarming state of sub-dermal emphysema which followed the injection of oxygen bubbled through warm water, and they would all be aware of the tremendous amount of subcutaneous emphysema one found in horses under certain circumstances.

Regarding marbling of the lungs, that was much in evidence in all cases of interstitial and broncho-pneumonia: he had seen it on *post-mortem* even in cases which he had not been able to diagnose as interstitial pneumonia during life. He thought that they met with more cases of contagious pneumonia in young cattle than there used to be, and he certainly thought that it occurred in young cattle that were eating a lot of seeds; he thought, therefore, that very likely Mr. Poles was correct.

He could support Mr. Reeks' opinion concerning hæmorrhagic septicæmia in cattle: he believed that the disease did occur in this country to-day.

Mr. Swaby's case of 70 fat cattle was a very alarming occurrence and constituted a very difficult position for the attendant veterinary surgeon. Having failed to demonstrate the presence of anthrax bacilli he (the President) should certainly support Mr. Swaby's theory that the disease was hæmorrhagic septicæmia.

He desired to say, in conclusion, that he was quite satisfied that the excellence of the discussion had well repaid him for the little trouble to which he had been put in preparing his paper. If they could have such discussions of practical subjects as regular features of their activities as a veterinary society, thus helping one another in their difficulties and sharing their experiences, that meant that theirs was indeed a scientific Association. (Applause.)

Mr. J. W. Beaumont, in his reply, said that Captain Dowland enquired of him to what extent he thought the pneumococcus played its part in pneumonia of animals. Well, they had to believe what their scientists told them, and he believed that the pneumococcus played a great part except, it might be, in septic or croupous pneumonia. He would give them an instance of a case. A horse had a wound: it was cut inside the elbow. At the end of a fortnight that horse died from septic pneumonia, having shown no sign of pneumonia until five hours before it died.

It was very doubtful if the pneumococcus played any part in croupous pneumonia, as in that condition one got occlusion of the alveoli and the air sacs by the effusion of fluid; this fluid was diluted blood and, by partly filling the air sacs, it prevented oxygen from entering the lungs and blood stream, and keeping the animal alive.

In regard to the lobar pneumonia mentioned by Captain Dowland in which the disease spread from part of the lungs to another, the severity of the attack in such cases bore no relation to the extent of lung involved, therefore he thought that the pneumococcus was almost solely responsible in that condition. Also, the repeatedly reported differences between the forms of pneumonia were not determined solely by changing forms of the causative organism, nor by varying response on the part of the animal; hence, the pneumococcus might play a large part there, too.

Mr. Hicks had very kindly given a formula for the treatment of hoose in calves—a creosote mixture; that was all right if one was going to utilise the formula for the preparation of single doses, but if one desired to make it up in bulk, unless the creosote was properly dispensed by being dissolved in æther, it would float at the top and one would poison some of one's cattle should they happen to get an extra dose.

In regard to giving intra-tracheal injections in young Polled Angus stock, he had killed as many as the next man, and he thought that there were two causes of death: if once the animal made a sudden movement or plunge at the time of injection, one was liable to inject the material in too quickly, and the other, that if there was any disease of the lungs (as they knew, the anterior lobes were often affected with hepatisation) the chances were that one would kill the animal.

Bogus Veterinary Surgeon.

At the Stratford Police Court on Saturday of last week, Walter Noel Cazalet, 33, an animal medicine manufacturer, was charged on remand with obtaining surgical instruments and type-writers by falsely representing himself to be a veterinary surgeon. It was stated that the defendant kept some kennels and dogs at the rear of a public-house at Woodford Green, and had obtained the goods by representing he was an M.R.C.V.S. Dr. Frederick Bullock, secretary of the Royal College of Veterinary Surgeons, deposed that the defendant was not and never had been on the register as a veterinary surgeon. The defendant pleaded " Guilty " and asked that three other charges should be taken into consideration. It was also stated that he had been several times convicted of fraud, and the Bench sentenced him to 12 months' imprisonment with hard labour.

The Ancestral Development of the Normal Blood Cells.

By W. P. Blount, M.R.C.V.S.
Late Centenary Post-Graduate Fellow, Royal (Dick) Veterinary College, Edinburgh.

The problem of the biology of the blood cells, particularly with reference to the primitive blood-forming cell, has always interested and yet perplexed the hæmatologist. The question whether there is one ancestor for all cells of the blood is still being debated. Although it is a very complex and rather controversial subject, several matters of fundamental importance need to be considered. Before detailing the several schools of thought which have dominated the field during the last 30 years or so it will be advantageous to outline briefly the embryological relationship between the blood cells of the fœtus and those of the mature animal.

Blood elements may first be recognised on the wall of the yolk sac as islets of mesenchyme cells. There is considerable argument concerning even these cells, for some believe them to be in part of entodermal origin, whereas the general opinion is that they are from the mesoderm. The *peripheral* cells of the blood islets form an endothelial wall, while the more central cells become free and apparently form the primary blood cells. Later, under suitable stimuli, these cells become differentiated to form only one type of adult blood cell; they apparently "metastase" to various tissues, chief of which are liver, spleen, marrow and lymphatic structures, etc.

In 1899 Ranvier described cells which he termed *Clasmatocytes*; later, Marchand observed that under suitable circumstances these were able to become converted into leucocytes and in 1913 Aschoff described fully the *Reticulo-endothelial* system. It is now generally accepted that the components of this system are undifferentiated remnants of the primitive embryonic mesenchyme, probably arising from certain of the *peripheral* endothelial cells of the blood islets, and that one of their functions is concerned with the production of blood cells. The reticulo-endothelial system of the adult presents itself as a scattered system of cells with common physiological and anatomical characters. The cells constituting it are very widely distributed, appearing in the spleen pulp and sinus, lymphatic structures, Kupffer cells of the liver, and as certain endothelial elements of the marrow, etc. They are naturally phagocytic and appear to abstract from the blood stream certain colloidal particles which they store. Some workers believe that the reticulo-endothelial system is intimately concerned with the formation of bile from hæmolysis of the red corpuscles, but its exact relationship to the liver is still uncertain. It has also been shown that this system in man is efficient for the storage of fatty material, and further that it is phagocytic for bacteria.

G. de Kock has studied the reticulo-endothelial system of the sheep and found that after removal of the spleen, because the reticulo-endothelial system is so well developed, normal blood destruction may persist without revealing specific lesions in any of the hæmatopoietic organs.

The *monophyletists* are those hæmatologists who believe that there exists in the *adult* animal a single kind of cell that is capable of producing any of the various types of blood cells, and they call this stem cell the *hæmocytoblast*, or lymphoidocyte. It is a polyvalent cell and may give rise to either granulocytes, hyaline leucocytes or red blood elements. From it develops the *leucoblast* which immediately precedes the parent cell of the granulocytes, the myeloblast, and the parent cell of the lymphocytes, the lymphoblast. The monocyte is not given any special parent cell, for it is believed that it may develop from either the myeloblast or lymphoblast. The red corpuscles develop from the *erythrogonium*. [Klein terms the common ancestral cell (which follows the hæmacytoblast) for the granulocytes and red corpuscles the *myelogonium*.] The late Arthur Pappenheim was probably the greatest supporter of the monophyletic origin of the blood cells.

Those who believe that there are several definite stem cells for the adult blood cells are termed *polyphyletists*. They are really of two parties, the *dualists* (upheld by Naegeli), and the *trialismusites* (Schilling and his followers). Naegeli believes that the granulocytes, monocytes and red corpuscles develop from a common cell the myeloblast, and the lymphocytes of course from the lymphoblast.

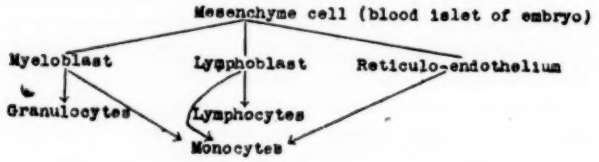
In 1912 Schilling first formulated the "trialismus" origin of the blood cells. He believes that the granulocytes, the lymphocytes, and the monocytes all have separate stem cells; these being respectively the myeloblast, the lymphoblast, and the reticulo-endothelium. To the student of hæmatology these views always appear most complex, but it must be realised that when these theories were propounded some 20 to 40 years ago blood technique was not at its best. Modern research has shown that none of these views is entirely correct. Aschoff, Piney, and Uyeyorohara have all added facts which assist in the solution of the problem of hæmopoiesis.

Monocytopoiesis.—Histologists early recognised that the blood of man contains a cell which is neither typically granular, nor typically hyaline. The largest cell of the circulating blood under normal conditions, its cytoplasm may contain fine azure granules when stained with Giemsa. The nucleus may be deeply indented and for this feature Erlich termed it the *Transitional leucocyte* (large hyaline leucocyte, large mononuclear, monocyte). After Aschoff's fuller description of the reticulo-endothelial system the monocyte was assumed to be one of its descendants, and more specifically its *direct* descendant.

Early this year Uyeyorohara published work which shows that the monocytes may be divided into three classes, because of certain reactions which they possess. Treating blood *in vitro* with carmine injections and afterwards applying the oxydase test (a specific colour reaction which is only given by cells of myeloid origin) he found that there were monocytes which accepted the carmine particles and which were presumably derived from the reticulo-endothelial system direct; monocytes which were not phagocytic but which gave a positive oxydase reaction and therefore presumably derived from the bone marrow; and finally others which were negative to both criteria and presumably derived from the lymphatic system.

If this work is confirmed, then the following course of blood cell development appears probable. It must be remembered that the biology of the embryonal and adult bloods cells differs considerably. In the embryo the mesenchyme cell is probably identical for the production of all

classes of blood cells, both red and white; for it has at least to be admitted that the further one goes back in the ancestry of the blood cells the chances are that the parent cells will become less and less distinguishable, simply because there are fewer cells to deal with, and that primarily there is only one cell, the fertilised ovum. As the embryo develops specialisation occurs and three separate stem cells can be recognised, thus :—



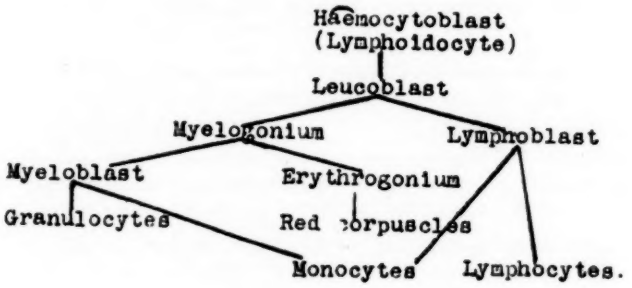
There, however, the problem does not end. If the ingestion of particles is taken as evidence of unity in the reticulo-endothelial system, we must consider the granulocytes also in this light, for the neutrophilic granulocyte at least is capable of active phagocytosis. The lymphocytes carry fat, iron, etc., and may show coarse azure masses in their cytoplasm (Wolff-Ferrata plasmosomes). Perhaps these monocytes which show true granulation in their cytoplasm are more *directly* developed from the reticulo-endothelial system, when compared with those which are hyaline; those which give the oxydase reaction less distinctly reticulo-endothelial yet definitely myeloid; and finally those monocytes which have neither granules nor demonstrate the presence of oxydase ferments, may belong to the lymphatic class and be furthest removed from their original parent cell—the reticulo-endothelial system. It is not known how these three types of monocytes present themselves in the 6 per cent. monocytic leucocytes which are normal to man. Histologically it is not difficult to appreciate the strong resemblance which frequently exists between the large lymphocyte and the monocyte. Both cells are large, mononuclear, and normally devoid of granulation. Until Pappenheim used Giemsa's stain for blood work these cells were believed to be completely hyaline; but with May-Grunvald or other modification of Giemsa's stain there are occasionally seen in their cytoplasm azure masses. These may be present as fine, numerous, azure points (almost completely filling the cytoplasm) or more frequently as larger azure masses, irregular in shape (Wolff-Ferrata plasmosomata). Both the monocyte and the large lymphocyte exhibit this characteristic inclusion of azure material and as such are on common ground. Peculiarly enough, the thrombocyte of the domestic hen also contains azure material when stained by one of the above methods and may therefore be closely allied in ancestry.

Another point of resemblance between the large lymphocyte and the monocyte is their nuclear character, because, although in man the former is typically "hillocky" or "blobby," and the latter finely strippled or striped in appearance, we have large lymphocytes in the fowl which can scarcely be distinguished from monocytes. The differentiation between the oxy- and basichromatin of the nucleus is hardly perceptible, although the cells are not usually as large as one expects with monocytes.

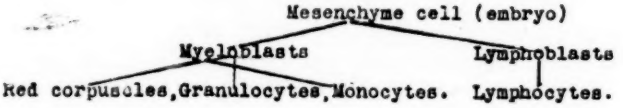
Piney is of the opinion that the central free wandering cells of the embryonal blood islets are purely erythrocytic; further, that they are of entodermal origin and form megaloblasts.

A diagrammatic representation of the various views is as follows :—

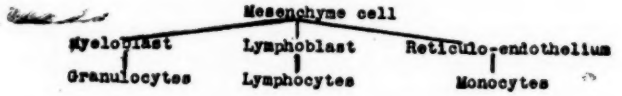
(Monophyletists.)



(Dualists.)



(Trialists.)



Register of Veterinary Surgeons.

The Register of Veterinary Surgeons for 1931 has just been issued to Fellows and Members of the College, and for their information, we may make a few interesting comparisons with last year's publication.

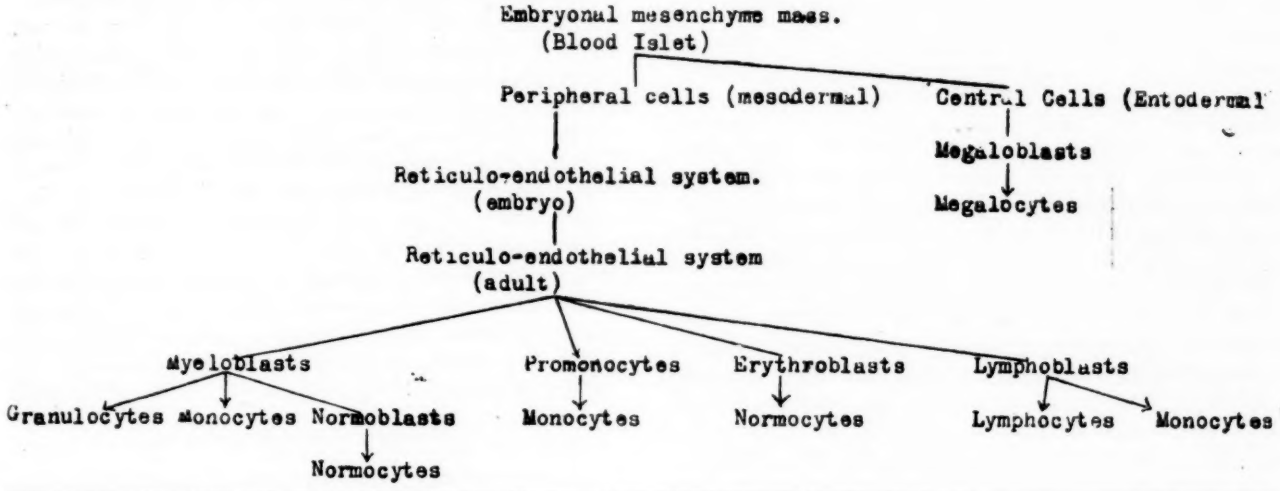
The number of Registered Members of the College has declined from 3,448 in 1930 to 3,432 in 1931. The number of registered "Existing Practitioners" has dropped from 46 to 41, making a total reduction in the number of registered veterinary surgeons of 21. The list of Fellows shows a drop of 5, from 240 to 235, but there are nine more holders of the Diploma in Veterinary State Medicine, the respective numbers being 102 and 111.

The new Register contains several fresh features. The telephone numbers of Veterinary Institutions are inserted in Appendix I, which has been enlarged by the addition of a list of Research Institutes and their staffs.

A new appendix has been added, showing the members engaged in the Colonial Veterinary Services, and we note that the list of Officers of the Department of Agriculture of the Irish Free State includes the newly-appointed Inspectors under the Agricultural Produce (Fresh Meat) Act, 1930.

These lists are undoubtedly a useful adjunct to the Register, and we are especially grateful for the list of whole-time Veterinary Officers in local Government employment.

Comprehensive View Outlined in the Accompanying Paper.



From The Veterinarian,

February, 1831.

On the Use of the Stomach Pump.

By J. Wilkinson, Esq., V.S., 17th Lancers.

Having fully satisfied myself of the very great benefit to be derived from the use of the stomach-pump in veterinary practice, I think it but just to my fellow-labourers in the field of research and improvement, to give them an opportunity of trying what good may be achieved from, at the very least, a facility of administering medicine in a state of solution, with the most scrupulous accuracy. I have used one now for four years with unremitting success, and with as little trouble as the common means adopted in ordinary cases. It has not only been very useful in the regulation of quantity, but has in several instances been quite indispensable, inasmuch as I have not been able to effect my purpose by any other means. It is useful in the administration of almost all descriptions of medicine soluble in water, or other innoxious medicine; and I wish to mention cathartics in particular, as I am convinced that the operation of aloes will be very greatly facilitated by being given in a state of solution. I mean not only expedited, but rendered far less likely to produce partial irritation in the stomach and small intestines, as very often happens when a ball is given, and the chance of failure is prevented, which sometimes arises when the medicine passes through the stomach without having been sufficiently dissolved to produce the wished for effect on that important and sympathetic organ. I have no wish to relate the particulars of a case where a female had taken a strong solution of oxalic acid, in which I was as fortunate in the use of the pump as I have been in its application in several cases in the practice of my own profession; one or two of which I will briefly detail, in the hope that the apparatus may (divested of the plausibility of its more diffusible utility) be considered to possess as much novelty as will recommend it to the notice of every veterinarian; and I do not hesitate to say that all who add it to their number of instruments will, as I have done, find it a very great acquisition.

The Council of the British Association has resolved to nominate Sir Alfred Ewing as President of the Association for 1932.

Royal Agricultural Society.

Sir Merrik Burrell on the Position of the Royal Veterinary College.

"A substantial improvement in the figures relating to the incidence of animal diseases throughout the country was reported at yesterday's meeting of the Royal Agricultural Society of England, over which Sir Arthur Hazlerigg presided," says *The Times* of March 5th.

"Professor Hobday, Principal of the Royal Veterinary College, showed that swine fever had fallen from 238 outbreaks in the corresponding month of last year to 111; sheep scab outbreaks had declined from 110 to 66; and parasitic mange from 38 to 20.

"Sir Merrik Burrell, Chairman of the Veterinary Committee, said that the decrease in the outbreaks of notifiable diseases was very gratifying and showed that if more veterinarians of the country were put in a position to combat these maladies they could do material good. It was to be regretted that the same decline could not be shown in regard to Johne's disease and others which were not notifiable. The figures showed the great importance to the country as a whole, and to the agricultural community in particular, of having a proper veterinary service and a proper veterinary college.

"The governors of the Royal Veterinary College, owing to the inability of the Trustees of the Pilgrim Trust to offer any assistance, were back in the same position as before, and that position was very serious. They had now collected £53,000 of the £100,000 necessary to entitle them to obtain a grant of £150,000 from the Government. He was afraid that it was now only through individual help that any hope could be entertained of preventing the closing of the college, a contingency which would be not only a national calamity, but a national disgrace.

"It was announced that a conference is to be held by four eminent veterinary authorities to draw up the outline of a test which shall be applied to the Spahlinger vaccine for the prevention of tuberculosis. The test is to be fair, but sufficiently drastic to satisfy the scientific world, if Mr. Spahlinger's system should be proved by it to be successful."

There have been successive increases in the number of sheep in the United States for eight consecutive years. This is the longest period of continuous growth in the number of sheep in the past 50 years.

The Veterinary Record.
March 14th, 1931.

Pneumonia.

In these days of research and the tremendous output of literature following in its trail, it is refreshing to turn to the columns of a professional paper and find an article of direct clinical interest. Most of our members are general practitioners and it is to them that Mr. Porter Smith's paper and its subsequent able and enlightening discussion will appeal most. There are many who are of the opinion that much of the present day research tends to become more academic than directly serviceable. Many of the common diseases are entirely neglected and still these lesions take their toll of the animal, the owner and the veterinary attendant. Pneumonia is probably the greatest killer of all diseases. In one form or another it is met with in all species of animal life. Its incidence may be not as widespread as some of the more spectacular conditions, but we venture to state that its percentage mortality is as high as that of any disease we may have to treat.

It occurs as a disease *per se* and also it is frequently met with as a complication or sequel of many entirely different conditions. In both cases its onset is perilous to life. The seat of its ravages is in probably the most vital area of the animal body. Nature recognises this by protecting the thoracic organs in a bony framework. It is a destructive disease, rapid in its progression, the pathological processes outdistancing repair as in few other diseases. It gives rise to widespread effects, no part is safe from its insidious influence, and the clinician is often at his wits end in locating and combating its complications. It is significant that in all fatal cases the immediate cause of death is undoubtedly heart failure.

If we turn to our literature, what do we find? This disease has been almost entirely neglected by research workers. It is to the clinician we must turn for help in its treatment. Veterinarians owe a debt of gratitude to Sir John McFadyean, for he, almost alone of all our pathologists, has given us help. To Sir John are we indebted for such knowledge as we possess of its pathology.

Turning to the clinical side, we would like to hear more of diagnosis, the means adopted in diagnosis, and particularly the problem of differentiation. Many conditions in their early stages simulate pneumonia and valuable time is often lost. We would warn our readers to beware of text-book descriptions, particularly those extracted from medical literature. The clinical signs and symptoms are not the same in all species; how fallacious it must be, therefore, to attempt to copy those of our human confrères. Let us, if possible, adopt our own lines of diagnosis.

With regard to treatment, except for the mention of vaccines and sera, the discussion might have taken place 100 years ago. We find that faith is still pinned to "*Vis medicatrix naturæ*," which treatment, however good it is, still gives us tremendous casualties. Noah must have known of this treatment and we may express the hope that some of our able research workers will take the matter up, and give a lead to the world. Here is a problem of great scientific and economic interest, common in its incidence, a slayer of man and beast. The clinicians will willingly help, and the research workers will forever lose that innuendo of "They are always looking for pH."

Shorthorn Cow's Record Yield.

A new English record for yearly production by a Shorthorn cow has been set up by Dumpling, in the herd of Mr. John Day at East Pennard, Shepton Mallet. Since calving on February 24th, 1930, this cow has yielded 30,009¾ lb. in 354 days, her total production in less than a year being approximately 20 times her own bodily weight. Her highest daily production—113¼ lb., which she gave on three occasions in April last—was a world's record for her breed. She has been recorded in Mr. John Day's herd since April, 1919, and to date she has bred ten calves, and yielded a total of 148,355¾ lb. of milk. Her record-breaking yield has been supervised by the Somerset and North Dorset Milk Recording Association. Throughout her lactation she has been fed four times daily and milked thrice, at 6.30 a.m., 2 p.m., and 5 p.m.

Dumpling is the second Shorthorn in the world to make a 30,000 lb. record, the first being the Australian cow Melba 15th of Darbalara, that gave 32,522½ lb. of milk in 365 days after calving on June 9th, 1923, at seven years nine months of age. Although Dumpling just fails to eclipse Melba's total yield, yet she possesses a better daily record with her three 24 hour records of 113¼ lb., against Melba's best yield of 110½ lb., given on August 29th, 1923.

Animal Strength of the United States Army.

The annual report of the Surgeon-General for 1930 gives the animal strength of the army as follows:—

1927	40,433
1928	39,982
1929	39,008

The allocation of these for the year 1929 to territory in which military stations are maintained was:—

	Horses.	Mules.
United States	23,458	10,165
Philippines	1,289	1,852
Hawaii	502	569
Panama	272	628
China, Porto Rica and animal transport	86	187
Totals	25,607	13,401

Among these animals 19,458 cases passed through the hands of the veterinary corps. The mortality was 61·47 per 1,000, a sharp increase over 1928, which was 44·45 per 1,000. The destruction of a large number of old animals and an outbreak of surra in the Philippines is given as the cause of the increased mortality.

The diseases mentioned as being of special interest are canker of the feet, dourine, glanders, influenza, mange, periodic ophthalmia, surra, strangles, ringworm, and internal parasites.

The veterinary corps in seven stations vaccinated 1,420 against rabies. Among these two contracted rabies.

Clinical and Case Reports.

Carbon Tetrachloride Poisoning in Cattle.

By W. Lyle Stewart, M.R.C.V.S.
Armstrong College, Newcastle-on-Tyne.

It is well known that the administration of pure carbon tetrachloride forms an efficient remedy against liver rot, and that the drug is, in general, well tolerated by sheep. Cattle grazing over fluke-infested pastures are also liable to the infection, and young Irish stores are frequently infected with flukes. The presence of flukes causes permanent damage in the livers of cattle, but they seldom become clinical cases, and although medicinal treatment may sometimes be advisable, carbon tetrachloride should not be used. Dr. Hall, in his "Parasitological Resumé," states that cattle are not good risks for carbon tetrachloride, and Dr. Montgomerie, in a private communication, confirms that dosage with 5 c.cs. of this drug is sometimes exceedingly dangerous to cattle.

The reason or reasons underlying this occasional intolerance are still unknown, but it is believed by some to be bound up with the metabolism of calcium in the body. It would seem evident that the better the body condition of the animals—and to a certain extent this applies to sheep as well as cattle—the more likely are we to find degrees of intolerance to carbon tetrachloride. This is brought out in the following case of poisoning by this drug:—

A colleague, practising in the North of England, was called to examine a group of cattle that had become ill under somewhat peculiar circumstances. The animals concerned were a lot of 15 blue-grey bullocks, two years old. The bullocks were in excellent condition, splendid specimens, and it was intended to exhibit several at the local agricultural show.

The history was that one or two of the cattle had been heard to cough, and the owner, fearing that husk was commencing, decided to administer a dose of husk mixture as a precautionary measure. A neighbour was asked to procure the medicine from the local pharmacist. It happened that the latter had none of his usual medicine in stock, but produced a proprietary husk remedy intended for use in sheep, which he stated would do as well. It was thought that the dose would require adjustment, so at the purchaser's request the pharmacist wrote over the label: "One tablespoonful to given to a stirk."

The blue-grey bullocks were grazing on old pasture land, where they had been for several months, and were receiving, in addition, a ration of approximately 2 lb. of mixed cakes per day. The ration was withheld on the day of dosing until after administration, when the animals were returned straight to the pasture.

Next morning one bullock was found dead, four others were seriously ill and the remaining animals were ailing. The veterinary surgeon was summoned at once.

The four animals seemed unable to rise from the ground, were very dull, had dry muzzles and their ears were slightly drooped. The temperatures and respirations were normal. The other animals were standing or lying about the field looking rather uneasy and not one of them was grazing. When approached several walked away with a staggering gait, plaiting the hind legs for 10 to 15 yards. After this they seemed to gain their balance and walked normally but were slow and listless. All the affected cattle showed considerable thirst, and drank from every pool of water they came across. Small amounts of dark-coloured fæces, stained with blood and streaked with mucus, were passed at intervals. The fæces were thin in consistence, and more or less severe tenesmus was noted. All temperatures were taken, but none was recorded over 103° F.

In the course of three days five of the worst affected bullocks had died. Before death several showed brain symptoms; all were in great pain and perspired freely. Death was preceded by unconsciousness.

The ten ailing bullocks were immediately housed and treated with laxatives and demulcents. Drugs were used sparingly because, although poisoning was suspected, the nature of the poisonous substance was still unknown. The cattle ate practically nothing for twelve days, when their appetites gradually returned. Soon all listlessness disappeared, and after trying them with grass they were returned to the pasture.

Three *post-mortems* were carried out and the appearances in each case were similar. The abomasum and small intestine were intensely congested and contained a small amount of blood-stained liquid ingesta, but no solids. In one case petechial hæmorrhages were observed on the serous membranes. In the others hæmorrhages were noted in various organs of the body, including the heart wall. The other organs appeared normal, and no parasites were discovered in the lungs or bronchial tubes. A few dead flukes were observed in the liver of one animal.

The viscera and feeding cake were analysed, but no common irritant poison was found and castor seeds were absent from the cake. A sample of the husk remedy was then tested by Dr. Clough, Royal Veterinary College, who reported that it contained about 35 per cent. by weight of carbon tetrachloride.

The writer was called in to assist with the *post-mortems*, but unfortunately was not available. When the facts of the case were related shortly after the event, poisoning by carbon tetrachloride was at once suspected, since the *post-mortem* appearances resembled that of sheep so poisoned. A quantity of the husk remedy was tested at Armstrong College by Mr. Brynmor Thomas, and was found to contain nearly 30 per cent. by weight of carbon tetrachloride, and there appeared to be little doubt that this substance was the cause of the deaths and illness. It is interesting to note that, after a time, liability for the error was admitted by the pharmacist, and a satisfactory settlement was made with the farmer.

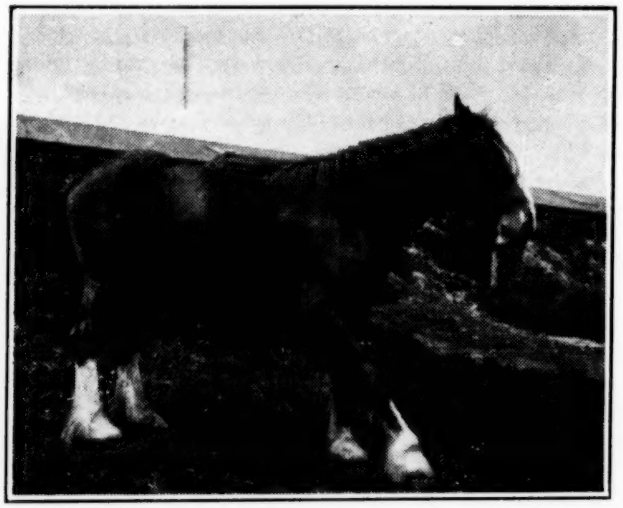
Assuming that the dose of one tablespoonful contained half an ounce, or 15 c.cs., and that the husk remedy contained 30 per cent. by weight of carbon tetrachloride, it is evident that these animals were poisoned by a dose of approximately 4 c.cs. of carbon tetrachloride.

Among other things, this case of poisoning has a moral for the thoughtful stockowner who purchases drugs from the pharmacists. *Verbum sat sapienti.*

Radial Paralysis.

By W. D. Snowball, M.R.C.V.S., and C. V. Dayus, M.R.C.V.S., Dunedin, New Zealand.

Subject.—A six-year-old Clydesdale Gelding.



[Photograph taken a month before the gelding was destroyed.]

History.—The gelding was found dead lame in the off fore leg, having been quite sound the previous evening. Though he was not a " rig " he had the habit of jumping up on other horses, and it is surmised that the injury was derived in this manner.

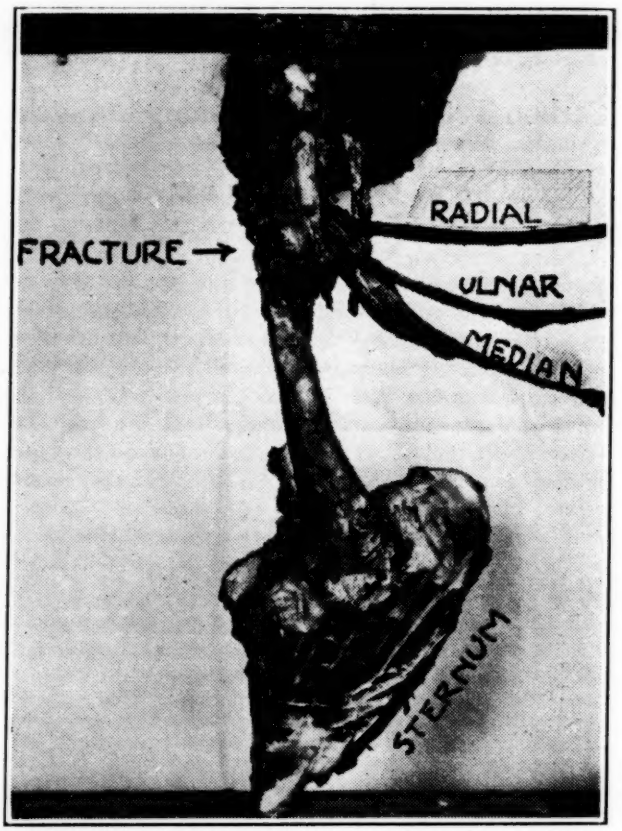
Symptoms.—From the clinical appearance, a diagnosis of radial paralysis was made, but the suddenness of the acute lameness precluded any suggestion of hypothetical neuritis being the cause. It appeared definitely traumatic and so, in accordance with customary opinion, quite impossible definitely to diagnose without an X-ray; a fracture of the first rib was suspected.

During the first three weeks the horse was kept in slings, as he exhibited evidence of considerable pain and greatly resented any manipulatory examination being made. At the end of the next three weeks there was noted some slight improvement, the hypersentitiveness seemed to be passing off, but no further improvement was noted from that period up to the time of his destruction, some four months later.

For over three months he was in a paddock enjoying complete freedom, where he hobbled about with considerable ability, practically on three legs.

Post-Mortem.—Five months after the original injury it was decided to destroy the horse, which was done on January 6th, 1931, and a *post-mortem* examination made. The accompanying photograph clearly shows how correct customary opinion was in this case.

A fracture in the upper third of the first rib was discovered; a callus had been thrown out round each end, but even after five months no proper union had taken place, and the upper portion of the fractured rib suffered slight forward displacement, which with the callus was a means of causing tension on the nerves. The uppermost nerve to the right of the photograph is the radial,



THE FRACTURED FIRST RIB, SHOWING RELATION OF THE FRACTURE TO THE RADIAL, ULNAR AND MEDIAN NERVES.

the middle the ulnar and the lowest the median.

Conclusion.—In this case we wonder if the diagnosis of radial paralysis is strictly correct? From the position of the fracture there appears no reason why the ulnar and median nerves should not be equally involved with the radial nerve, From impaired flexion, as well as extension, and the hypersensitiveness, it would appear that this was actually so.

Lord Moynihan and Milk.

Under the above heading, the following letter appeared in the *Yorkshire Post* of March 3rd :—

" Sir,—May I, after reading most of the correspondence resulting from Lord Moynihan's speech on the milk problem, make a suggestion that Sir John M'Fadyean, President of the Royal College of Veterinary Surgeons, and probably the greatest living authority on tuberculosis in cattle, be approached as to how to settle the problem of a pure milk supply?

Lord Moynihan did mention that the Ministry of Health would gain by further veterinary assistance, and I submit that such help is the only way to secure what is desired by the medical profession.

" Much more could be mentioned. Lord Moynihan referred to a farmer " who never had a tuberculous cow.' That reminds me of a ' hunting man ' who never had a fall. It is too farcical to dwell upon.

" Give the heads of the veterinary profession a free hand, and they will eradicate tuberculosis in cattle, and the milk problem in regard to tubercle infection will be solved.

Yours, etc.,

Samuel Wharam, M.R.C.V.S."

Compton, Collingham,
Near Leeds,
March 1st, 1931.

Eleventh International Veterinary Congress, London

August, 1930.

(*Continued from page* 262.)

Control of Trypanosomiases.

By H. E. Hornby, o.b.e., f.r.c.v.s., d.v.s.m.
Government Veterinary Pathologist, Veterinary Laboratory, Mpwapwa, Tanganyika Territory, East Africa.

Hornby recognises the following species of trypanosomes:

T. theileri is found in cattle in all parts of the world: the pathogenicity is very low but occasionally it is virulent, usually in combination with rinderpest.

T. melophagium is found in sheep and has a world-wide distribution. It appears to be non-pathogenic.

T. gambiense does not cause serious disease in domestic animals, most cases of successful inoculation recovering spontaneously.

T. brucei (including *T. rhodesiense*) causes a mild disease in cattle but is rapidly fatal to equines, camels, pigs and dogs. Cats are more tolerant; while sheep and goats are intermediate between bovines and equines.

T. congolense is the commonest cause of fatal bovine trypanosomiasis and is equally fatal to the other species of domestic mammals, with the possible exception of camels. *T. simiæ* which is specially virulent for pigs and monkeys, is probably a strain of this species. It is equally virulent with some strains of *congolense* for the other animals.

T. vivax varies in its virulence but is non-pathogenic for dogs and, on the whole, less pathogenic for equines and ruminants than *congolense*.

T. uniforme differs from this species only in size.

T. evansi has a similar pathogenicity to *T. brucei* from which it is probably derived. *T. equinum* is probably a race of this species.

T. equiperdum is found naturally only in equines, being transmitted by coitus.

T. rhodaini is very virulent for pigs at least; but its pathogenicity has yet to be fully studied.

Transmission.

T. brucei is spread almost exclusively by tsetses. Once this species is separated from tsetses, it becomes indistinguishable from *T. evansi*, which is transmitted mechanically. In fact, Hornby regards the two as probably identical, *T. evansi* being merely a mechanically transmitted *T. brucei*.

T. congolense is spread mainly by tsetses but may be maintained apart from Glossina.

T. vivax is also spread by tsetses, but is even less dependent on Glossina and although it is one of the commonest forms found when large numbers of tsetses are dissected and where domestic animals (other than dogs) are exposed to their bites, it is often found far from the flies.

T. equiperdum is entirely independent of tsetses and is found in all the continents except Australia.

Control.

Dourine.

The best means of diagnosis is by complement fixation. Treatment is still unsatisfactory. The disease is fatal in males, less so in females. Control depends on accurate diagnosis, and destruction of carriers.

Surra.

The parasite is particularly virulent for equines, camels, dogs, and pigs, sometimes also for cattle and elephants; rarely for buffaloes, sheep and goats. This makes control much more difficult than in the case of dourine. Diagnosis depends on symptoms, microscopic recognition of the parasite, animal inoculations, and serum tests. The mercuric chloride test is specific for camels; the formol-gel test has some success with equine serum. Transmission is by blood sucking arthropods—mainly Tabanids. Treatment is easy in animals with a high natural resistance—a single dose of any trypanocide being sufficient for buffaloes, sheep, goats; and camels also are easily treated.

Dogs and horses are more difficult to treat: best results are obtained with Bayer 205, alone or in conjunction with another drug. One of the chief difficulties of control is the number of naturally premunised animals. Prophylaxis includes quarantine which must be general and applied rigidly. Where the disease exists, diagnostic tests and segregation, together with treatment of all reactors, is useful. All animals of a special class may be given prophylactic treatment.

Nagana (*e.g.*, trypanosomiasis caused by forms capable of cyclical transmission).

In the Absence of Tsetse.

Although the disease caused by these forms is most important when cyclically transmitted, it is not unimportant when mechanically spread. In the absence of tsetse, the disease is practically confined to cattle and pigs, because the other species of animals are less exposed to infection. Diagnosis is difficult and the best method is thick smears of blood or gland, made repeatedly. Transmission is unknown, but Tabanids are strongly suspect. *T. brucei*, which in the absence of tsetse is practically confined to pigs, is best treated by Bayer 205 intravenously; while *T. vivax* and *T. congolense*, which are found in cattle as well, are best treated with Antimosan, which is both less toxic and less irritant that tartar emetic. Premunised cattle are common in some localities. Prophylaxis demands a careful examination of new introductions to herds; a three weeks' quarantine has been recommended with preventive inoculations of Antimosan.

In the Presence of Tsetse.

Mammals within the tsetse belts are insignificant in number and are resistant to all local strains of trypanosomes. New introductions contract a usually fatal disease. An intermediate stage is found on the edge of the tsetse belt, where the disease is sporadic and the cattle population consists of a number of infected sick animals, infected premunised animals, and the uninfected remainder. From the practical point of view, diagnosis is only necessary in the case of susceptible animals exposed to infection but which may or may not have become infected. Symptoms and thick blood films are valuable in these cases. Transmission is by tsetses of various species. Different hosts have different effects on the transmissibility of the trypanosomes; this has given rise to the *Transmissibility Index*, and the development of this is of great importance in assessing the rôle played by different hosts as reservoirs.

Hornby does not accept premunisation as the solution of the trypanosome problem, although it might be of use

as local measures. (In such cases, small herds and abundance of food are necessary, and movement must be discouraged). Acute nagana in susceptible animals must be controlled by the removal of the animals and intensive curative treatment. The intermediate or enzootic form on the fringe of the fly belt is the commonest form and is best dealt with by treatment of sick animals and pushing back the fly belt. Farming should be encouraged at the edge of the belt to stump all but the finest of the trees and to grow crops in rotation. Fumigation houses as used in Uganda are useful. Eradication of tsetses on a large scale is of the greatest importance. Fly-free areas *if properly used,* would meet all the existing needs of Africa; and if natives were educated properly to use this land, there would be no need to exterminate game and cut down trees. Game reserves should not be created in fly country; but in fly-free country. If this were done, the restrictions on game destruction in fly country could be relaxed. Africa can then be restocked from these reserves when game has become dissociated from tsetse and trypanosomes. T. W. M. C.

Control of Trypanosomiasis in the Dutch East Indies.

By Dr. C. Bubberman.
Director of the State Veterinary Institute, Buitenzorg (Java).

Two trypanosomiases are known in the Dutch East Indies, namely, surra and dourine; only the former causes any great loss in agriculture.

Surra.—Surra was first studied here in 1897 by Penning and since then much work has been done on it. de Blieck introduced arsenotherapy in 1908 and special attention has been paid to the etiology and prevention by laboratory workers since 1921. Horse, dog, ox and buffalo are susceptible to *T. evansi* and the former two species always die when infected, whilst the ruminants may die of an acute attack, but the majority survive and become carriers of infection. The numbers of notified cases of surra are given in tabular form, but many cases escape discovery in the districts less well-controlled.

The years 1924-1928 are considered and the numbers of infected horses, buffaloes and cattle for 1928 are respectively 803, 5,477 and 680.

Dourine.—This is but seldom observed. The disease runs a mild course as a rule and the mortality is low, but probably many more cases occur than are observed officially. The law of Animal Diseases contains rules for the control of dourine.

Transmission of Surra.—Although direct transmission from horse to horse frequently occurs, the commonest cause of infection is indirect transmission from the bovine, chiefly the buffalo. Nieschulz has shown that Tabanids are the common carriers and 24 species of them have been found to transmit surra. Tabanus, Chrysops and Hæmatopota are the genera that have been studied and, according to Nieschulz, *Tabanus rubidus* and *T. striatus* possess the greatest significance in this respect. Other flies do not appear to have an important part in the dissemination of surra in this country. Nothing is yet known about the possible development of trypanosomes in the bodies of flies. It has been found, however, that the fly remains "virulent" after the first transmitting bite and may confer the infection by a number of successive bites.

Symptomatology of Surra.—(1) Horse. The disease is a progressive anæmia with remittent fever and ends fatally after 4-8 weeks. Incubation period is 7-13 days with an average of about nine days. Infected horses become listless, lame with excessive wear of the toes of the hind hooves, and œdema of the dependant parts of the body arises with ocular and nasal discharge.

(2) Buffalo and ox. In the usual chronic cases there is an initial stage of fever, conjunctivitis, œdema and vertigo. Apart from this, there is no characteristic symptom, but only an indefinite loss in condition, which makes one suspect surra. Overwork and severe weather might easily give rise to a similar appearance or, superimposed, cause the disease to flare up into an acute attack with fatal termination. In acute cases symptoms resemble in general those of the horse.

(3) Dog. The disease has a course of about six weeks with fatal termination. Infection seems to occur by the intestinal canal as well as by bites by flies. Clinically, keratitis and conjunctivitis, with resultant blindness, usually occur together with fever, œdema, particularly of head and neck, and nervous disorders.

Control of Surra.—This is arranged by law in the Dutch Indies (State Paper, No. 435, 1912). Its most important points are:—(1) Animals ill with surra or suspected of being infected must be isolated in buildings which must be fumigated so that no flies enter. (2) If surra is present in more than one farm in any district, then all animals, whether ill or not, must be confined between 6 a.m. and 7 p.m. in the manner described in clause 1. (3) Under certain circumstances permission is given for the use of such still healthy animals. During work they must be protected as much as possible from flies. Stock may be turned out between 7 p.m. and 6 a.m. (4) The marketing of animals is forbidden in a district that is at all badly infected. Transport of animals through an infected district may be allowed if contact with local animals is avoided. (5) Infected animals may be slaughtered for food when they appear good for human consumption. Transport to the place of slaughter and the killing and dressing may only be done between 7 and 9 p.m., and meat may only be sold within 10 hours of slaughter. The hide must be kept for 24 hours in a dark place in order to minimise the attraction of flies, after which it may be dealt with in the usual way.

Since Naganol has been proved to be useful, it is now employable in conjunction with police control. Experimental tests, later supported by use in practice, furnished the following data.

(1) Horse. Naganol has great prophylactic value, in that 1 gr. per 150 kg. body weight nearly always gives a good protection against natural infection, which lasts for one month or more. By combining Naganol 3-3½ gr. with Atoxyl 3-3½ gr. per 150-200 kg. body weight, a recovery percentage of 60 can be obtained. Naganol gives best results in the initial stages of the disease.

(2) Buffalo. The prophylactic dose for this animal is 2-3 gr. for the adult. 3-5 gr. Naganol effects a cure in about 56 per cent. of cases of acute surra.

In the Dutch East Indies a workable plan for stamping out the disease is not possible owing to the dearth of veterinary surgeons and the vast districts which would have to

be patrolled. One can only try and reduce the loss. With horses a curative treatment is only worth undertaking if they are in the initial stage of the disease. The treated horses must be kept for at least eight days in the stable and only used again when they are declared cured. They are kept under control for six months and are examined clinically and microscopically twice a month during this time. Afterwards they are released from supervision. If illness returns with nervous symptoms no further treatment is attempted.

For buffaloes and cattle Naganol is used in all cases of clinically-diagnosed surra, except in the last stages of the disease. Animals under treatment must be kept confined for eight days and after cure they are let out. Carriers without clinical symptoms are released after a few days. All beasts treated with Naganol are kept under observation for one month.

Surra control in horses follows the above-mentioned regulations, which are designed specially for districts not under continuous supervision.

Suspected animals are released after 14 days, on condition that they are examined clinically and by blood test at least twice during the period of quarantine.

For horses already ill the above-mentioned veterinary police measures are used in conjunction with Naganol-Atoxyl therapy.

This method, which is planned to keep the costs low and to avoid disturbance to business, is more suitable for districts in which there is a resident veterinary surgeon.

When a horse becomes ill, it is at once isolated and placed in a dark stable which is made as fly-free as possible, and all the other horses of the place are examined by a skilled person. Sick horses are either eliminated or put under Naganol-Atoxyl treatment. Horses appearing free from infection are worked in the usual way and are examined clinically and as regards temperature every morning for a period of 14 days after the discovery of the last case of surra. Thereafter they are examined twice a week for a month and after that length of time are released from control (if, of course, they are still healthy). In an infected place horses which still appear to be healthy are given one curative dose of Naganol, kept at rest for a few days and then allowed to return to work. Thereupon they remain under supervision for one month before being finally released. A curative dose is given to be on the safe side in case an animal was in the incubation stage, though still apparently healthy. Control of surra in cattle and buffaloes is done purely by police measures, or by the same in conjunction with Naganol therapy.

It is quite hopeless to try and control surra in the Dutch East Indies by means of a biological control of the Tabanidæ, as they breed in the rice fields and are not selective in their breeding places.

Nowadays, therefore, the methods outlined above show all that can be done in the matter, and results are really very gratifying.

J. T. E.

The Canadian Government has issued an Order in Council putting an embargo on imported Danish bacon on the ground that foot-and-mouth disease is prevalent in Denmark. This ends the attempt of Danish co-operative bacon factories to invade the Canadian market.

Review.

Reactors in Tuberculin-tested (Licensed) Herds.

The Hannah Dairy Research Institute, Auchincruive, Ayr, has issued a bulletin (price two shillings, post free) dealing with an inquiry made by Mr. A. B. Fowler, B.Sc., and Mr. N. C. Wright, M.A., PH.D., into the incidence of reactors in tuberculin-tested (licensed) herds in Scotland and into the sources of infection from which such animals contract the disease. The inquiry is of interest to practitioners and students.

It reveals that over a six-year period, 1923 to 1929, 28,221 official tests were recorded, and 428 reacting cows were found.

The average proportion of reactors was, therefore, 1·52 per cent., representing a loss of three reactors per 100 head of milking stock per year.

The number of reactors at successive six-monthly official tests showed that the loss during the first year amounted to five reactors per 100 head, falling to one reactor per 100 head by the fifth and sixth years.

The relation of the incidence of reactors in tuberculin-tested herds to the possible infection of the milk supply shows that not more than three in every 10,000 animals in such herds can be considered as actively dangerous. Calculated on the 1928 cow population, this indicates that there is each year not more than one dangerously infected animal among the whole of the licensed tuberculin-tested herds in Scotland.

Another noteworthy feature is that not more than two per cent. of reacting cows secrete tubercle bacilli in their milk. As examination of the sources from which the reactors in tuberculin-tested herds may contract infection was made by means of a thorough investigation of the case histories of 462 reactors.

The proportion of reactors infected from individual sources worked out as follows:—

	Per cent.
Infected bought-in stock	34·0
Infection through contact with other reactors or untested stock	24·5
Infection from contaminated premises and pastures	11·5
Miscellaneous and multiple sources of infection	19·25
Anomalous tuberculin tests	4·5
Source of infection not traced	6·25

The individual sources of infection are discussed in detail. It is pointed out that less than 10 per cent. of the reactors contracted infection from sources out of the control of the owner of the herd, the remaining 90 per cent. of cases being avoidable if due precautions had been taken. Interesting recommendations to eliminate the main sources on infection in tuberculin-tested herds are submitted by the investigators.

It is suggested that there should be adopted a three-monthly test in place of a six-monthly test during the initial stages of clearing, and for a limited period subsequent to the issue of the licence. This, it is contended, would ensure a rapid displacement of infected stock from the herd, and would limit the period during which tubercle-free animals were in contact with such infected stock.

It is strongly recommended that tuberculin-tested herds should be maintained exclusively by home breeding by tested sires. In cases, however, where stock has to be purchased from external sources, it is suggested that no purchase should be made in the open market, and owners should on no account buy in cattle from untested or doubtful herds. An association for the co-operative buying and selling of tuberculin-tested stock should be formed and might be managed by the Certified Milk Producers' Association.

Further precautions in the buying of such stocks include :

(1) The veterinary surgeon should be instructed to ascertain the history of the bought-in animal, in addition to applying the tuberculin test.

(2) The animal should be protected from infection in transit and on arrival at the new premises it should be isolated and detained until it has passed three official tests at different periods, within six months after arrival.

The following precautions should be taken to prevent the spread of infection on the farm itself :—

Thorough cleaning and disinfection should be undertaken to prevent the spread of infection on the farm itself : thorough cleansing and disinfection of all infected premises, followed by sterilising with the flame of a blow-lamp.

Animals known to have been in continued close contact with a reactor (for instance, stall mates) should, if possible, be isolated until the next official test.

Manure from infected premises should not be spread on pastures but preferably be used on arable fields or on fields to be cut for hay.

Similarly, fields which have been occupied by reactors should not be used for grazing tubercle-free stock.

All boundary fences separating the farm from fields in which neighbouring untested stock are likely to graze should be double fenced.

No untested bulls should be kept for service in tuberculin-tested herds.

Cattle exhibited at agricultural shows should be provided with accommodation separate from that occupied by untested stock.

. . . . .

Dr. Drummond Shiels, M.P., in a preface to the bulletin, points out that the outstanding feature revealed by the collected figures is the very small proportion of infected animals in the herds investigated, and the negligible risk of infection to those who consume milk produced under stringent precautions incumbent on the owners of licensed tuberculin-tested herds.

He emphasises that the conclusions are tentative. The bulletin merits close study by all interested in the problems connected with the prevention of bovine tuberculosis.

The reviewer regrets to observe that no veterinary surgeon was asked to assist with the enquiry.

W. J. Y.

Army Veterinary Service.

London Gazette—War Office—Regular Army.

February 17th.—The following are restored to the establishment :—Major M. A. Murphy (January 30th) ; Captain A. P. Macdonald (February 4th.)

Colonial Veterinary Service Report.

Veterinary Department, Nigeria.

[The Annual Report of the Veterinary Department, Nigeria, for 1929. A foolscap publication of 84 pages, with several illustrations. Printed by the Government Printer, Lagos, and obtainable from the Crown Agents for the Colonies, 4, Millbank, S.W.1. Price 5s. 6d.]

. . . . .

Stock Census.

Cattle.	*Sheep.*	*Goats.*	*Pigs.*	*Donkeys.*	*Horses.*
2,974,000	1,723,000	5,035,000	50,000	548,000	196,000

Staff.

The Chief Veterinary Officer, Mr. W. W. Henderson, is assisted by Mr. J. A. Griffiths as Deputy, and 11 veterinary officers. Four new officers were appointed during the year, and Mr. Griffiths arrived on transfer from Nyasaland. Mr. G. E. Owen retired from the Service.

The Laboratory is under the control of Mr. G. N. Hall, who was transferred from Uganda to succeed Mr. W. Kearney. Mr. Hall is assisted by two research officers.

Research.

(*a*) Facilities.—The building extension programme, costing £34,000, was still in progress, and gas and electrical facilities are not yet ready.

(*b*) Animals.—Difficulty continues to be experienced in obtaining a sufficient number of cattle susceptible to rinderpest. Pasturage is limited and the cost of hand feeding is high.

(*c*) Diagnosis.—Three hundred and fifty-two specimens received from the field staff were reported on.

(*d*) Biological Products.—Nine thousand seven hundred and fifty litres of anti-rinderpest serum were prepared. Owing to the prevalence of trypanosomiasis, hyperimmunisation by the intra-ruminal method had been adopted, but it is suggested that the serum so prepared is less potent than that resulting from the intra-muscular method.

Blackquarter vaccine (formalised culture) was prepared after the arrival of equipment.

A new strain of bovine pleuro-pneumonia culture has been obtained.

(*e*) Investigations.

Rinderpest.—Experiments with vaccine-virus have been carried out. Spleen pulp, one part to five of saline, is used, formalised to 0·2 per cent. The dose first tried was 50 c.c., equivalent to 8·3 grammes of spleen, but recently 2·5 grammes were found to give protection owing to finer emulsification.

This vaccine has been employed between 14 and 72 days after preparation, storage being at room temperature in the dark.

Immunity was not acquired until a lapse of between nine and 14 days after vaccination ; thereafter a strong immunity existed, the duration of which is now being ascertained.

Other Diseases.—Considerable research has also been conducted into trypanosomiasis and bovine pleuro-pneumonia, the results of which are referred to under the headings of these diseases.

Disease.

Rinderpest.—With the exception of one Province, this disease shows a decrease in incidence and mortality over former years. Re-introduction in trade stock from French territory is one cause of spread. It was found necessary to open inoculation camps in both the dry and the wet season grazing grounds. In all, 165,000 head were inoculated, with a total mortality of 3 per cent. Doubtless this result will be improved upon, since the figure includes losses in herds already infected at the time of inoculation, as well as from intercurrent infections, notably trypanosomiasis, which in some localities during the rainy season may be very high.

Field serum obtained from immune cattle (in contradistinction to laboratory serum of hyper-immune cattle) was also employed, and its use suggested that in some instances it is more potent than laboratory serum.

Further investigations have been carried out into the use of vaccine prepared from spleen extract. Owing to rinderpest being widespread, and to a period of 14 days being considered necessary after vaccination before immunity is established, experiments were carried out by the joint use of serum and vaccine, the former conveying a passive immunity until that from the vaccine had been built up. In other observations virus was given either at the same time or 14 days later. The results are very definitely in favour of vaccine immunisation, but further work is necessary to elucidate improved methods of preparation and application. On grounds of cost it would appear that vaccine will be more economical than double inoculation.

The susceptibility of goats to rinderpest has long been known, but they have not hitherto been accepted as active carriers of the disease in nature. The experiments carried out by Beaton suggest that they can become infected by contact with infected cattle, and can in turn affect both goats and cattle which are placed in contact with them.

Pleuro-pneumonia of Bovines.—Probably owing to greater opportunity for observation, this disease has been detected over a wider area than hitherto supposed. The movement of trade cattle, and introduction from French territory, are responsible for spread, and, it is stated, adequate control can only be effected by a system of widely applied vaccination.

Unfortunately, the results of vaccination do not compare favourably with those obtained in other countries. Either the cattle are more susceptible, or the strain of virus is more potent, but after considerable difficulty Hall has produced a vaccine with which good results have so far been obtained. The medium advocated by Bennett was found as good as Martin's boullion.

A new method of vaccination has been tried; the skin at the top of the ear is smeared with vaccine and is then punched with the ordinary tatooing instrument. Simplicity and rapidity are claimed for this procedure.

No difficulty is experienced in growing the Nigerian virus; various media were successful, and Hall states that he cultivates the organism readily from spleen, all lymphatic glands and from blood.

Trypanosomiasis.—In cattle *T. congolense* and *T. vivax* are the species most common. Owing to the nomadic habits of owners, to the wide distribution of tsetse flies, and to enforced concentration on river beds during the dry season, the infection is very prevalent.

Routine treatment with tartar emetic has been carried out extensively, with excellent results. A dose of from 0·5 to 1·0 gramme is administered intravenously in a 4 per cent. solution. Up to six injections are given, but improvement is noticeable after one or two. Complete sterilisation is not claimed.

Hall isolated a strain of, apparently, *T. congolense*, which was almost non-pathogenic, and contemplates experiments on the lines of Bevan's premunition.

Neither the mercuric chloride test nor the adhesion phenomenon were found of value in diagnosis with bovines.

There exists in many parts of Nigeria a condition of cattle known as "Modu," which is characterised by allotriophagia, with a special tendency to earth eating. Animals suffering from trypanosomiasis show this to a marked degree, but all signs of pica disappear after the exhibition of tartar emetic in treatment. It is suggested that there exists a widely spread phosphorus deficiency, the results of which are accentuated by the presence of trypanosomiasis.

Blackquarter.—A serious mortality from the disease occurred during the year, and in some parts acquired almost epizootic proportions, affecting also old animals.

Fifty-one thousand doses of vaccine were prepared and used after the necessary equipment had arrived from England. The method employed is a formalised culture of 72 hours' growth, to be used only after the formalin has been in contact for at least three days. The dose at present being administered is 10 c.c.

Tuberculosis.—While this disease had not yet definitely been diagnosed in Nigerian cattle, it became necessary to test the herd of a Stock Farm in the Cameroons. The number of reactors, mostly imported and grade animals, was so high that steps are being taken to slaughter the whole herd. It is surmised that infection was introduced in the cattle imported from Germany.

Economics.

The value of hides and skins exported from Nigeria in 1929 was £930,000. It is computed that 3½ million goat skins left the country.

Great attention is being paid to an improvement of this industry; a native staff has been trained and works under experienced stockmen controlled by the veterinary officer, and improvements are being effected in the methods of flaying and drying. The losses due to diseases of the skin are also under investigation.

In an endeavour to provide a wool for a peasant weaving industry, a race of indigenous sheep has been selected, and the report received from the Wool Research Department in Leeds is most encouraging.

It is estimated that Southern Nigeria alone consumes 250,000 cattle annually.

Pasture and Feeding.

The analyses of natural grasses show a deficiency in both phosphorus and calcium, and attention is drawn to the disease "Modu" which manifests itself by a craving for eating earth.

This deficiency has been counteracted by the feeding on bone meal in daily rations of two ounces. In one experiment lasting nine months the herd receiving this ration

Abstracts.

[**Researches into Sterility of Cows in South Africa.** Quinlan, J., 15th Report of Director of Veterinary Services, Onderstepoort, Pretoria, 1929. Reviewed by F. Lestoquard, *Rev. Vet.*, 1930, 82, 601-609.]

Quinlan's treatise consists of 74 pages, dealing with the various causes, etc., of sterility, with five appendices—(1) (57 pages), general appearance, history, gross examination, *post-mortem* examination, histological examination of genitalia and the endocrine glands, treatment and the cause of sterility of cows slaughtered as incurable during the investigation; (2) (45 pages), photographs of genitalia of cows slaughtered and of a few individual cows in which the lesions producing sterility caused anatomical changes; (3) (21 pages), micro-photographs representing the pathological changes in the genitalia described in the text; (4) (6 pages), charts of œstral periods and duration of the inter-ovulation periods of animals suffering from sterility from various causes, and (5) (2 pages), dimensions and weights of epiphysis, hypophysis, thyroid and adrenal glands in the sterile cows slaughtered as compared with the dimensions of these glands in normal cattle killed at the Pretoria Abattoir. There are 152 references to the literature on the subject.

In the introduction, the various causative factors are reviewed. Specialisation with the object of intensive milk production, especially when linked with permanent stabling, insufficient exercise, abundance of food and prolongation of the normal length of lactation, is a cause of sterility.

The endocrine glands play a definite but not always clearly explained part in causation. In some cases, resistant to treatment, there have been found lesions of the thyroid, hypophysis, thymus and adrenals, e.g., hyperæmia, amyloid degeneration, calcification, etc. Hypertrophy of the thymus and adrenal has been noted, and quite often can be successfully treated by glandular extracts and by operations on the ovary. Feeding plays an important rôle. Very fat animals are often sterile and withholding of exercise is a further danger. On the other hand, under-feeding may bring about troubles in ovulation.

Sterility is dominated by various infections of the genital tract—contagious abortion, contagious granular vaginitis, tuberculosis, etc.; as predisposing causes to these diseases may be mentioned the crowding of animals together, bad hygiene and lack of fresh air and of light.

In order of importance the immediate causes of sterility are—chronic metritis, inflammation of the neck of uterus, salpingitis and ovarian diseases.

Diseases of the Vulva and Vagina.

Under this heading are discussed:—

(1) *Stenosis of vagina*—rather frequently met as a complication of the treatment of vaginitis.

(2) *Cysts in Bartholin's glands and Gœrtner's ducts.*

(3) *Congenital hypoplasia of the genital tract.*—The condition is usually referred to as "free martin" and occurs, as a rule, in the female of a mixed male and female twin pregnancy. In most cases the anterior part of the genital canal is not developed and only traces of Müller's canal can be found.

(4) *Infectious vaginitis.*—(*a*) This disease exists apart from contagious abortion; (*b*) Its importance as a factor in sterility has been exaggerated; (*c*) Acute vaginitis is associated with bad hygiene and the often irrational treatment undertaken brings about a temporary sterility; (*d*) In certain cases, the sterility is not due to the vaginitis, but to other co-existant causes, *e.g.*, contagious abortion, functional sterility and severe lesions in the genital tract; (*e*) Treatment is to be carried out only after a minute examination and a serological test; (*f*) Treatment is indicated where the abundant discharge prevents conception; (*g*) Treatment is contra-indicated when there is no sterility and when the cows are in calf.

Diseases of the Neck of the Uterus and of the Uterus Itself.

(*a*) *Cervix uteri.*—Anatomical deformities, *e.g.*, double or triple necks.

Cervicitis.—May exist alone or in conjunction with metritis. It is of the utmost importance; the sterility it produces may be temporary and curable, but subsequent invasion of the uterus and fallopian tubes may lead to permanent incurable sterility. The cause is microbial, as a rule streptococcal. It is a frequent complication of metritis or vaginal infections. The bull may act as a transmitter of the disease. Clinically an acute or chronic inflammation is seen, with a quantity of muco-pus. Lack of treatment may lead to such conditions as hypertrophy or stenosis of the cervix, induration, polyp formation, etc. Prognosis depends on the severity of the condition and on the presence or absence of metritis. The affected should be isolated and service by the bull discontinued. Treatment consists in swabbing with iodine solution.

(*b*) *Uterus.*

Chronic Endometritis.—This, in South Africa, is responsible for 70-80 per cent. of cases of sterility. In general, it is a sequel to puerperal metritis. It is most commonly met with in herds where contagious abortion is widespread. It appears when a certain degree of immunity to abortion has developed. The afterbirth is retained as the result of the placentitis of abortion and secondary invaders gain entrance to the uterus. The bacterial flora varies *e.g.*, *B. coli*, strepto- and staphylococci and *Str. viridans.*

Clinically, one encounters anything from a simple catarrh to a purulent metritis. At *post-mortem*, the findings are in relation to the clinical manifestations. Ovarian cysts are often associated with chronic metritis and it would appear that these are secondary to the uterine trouble.

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weighed an average of 92 pounds more than the controls. If bone meal were to cost £10 per ton, the cost of this increase in weight would be only three shillings. There can be little doubt, also, that the manure of bone meal fed cattle will be richer for agricultural purposes.

Genetics.

The Stock Farm carries 1,100 cattle. In addition to the flock of woolled sheep, Southdown rams have been kept, in the hope of obtaining a better mutton carcass, besides effecting a suitable cross on the native hairy sheep.

The Dwarf Pagan cattle of Nigeria are "not a special and distinct breed of small cattle," but, as is shown by the weight of their internal organs, are definitely dwarfed. Figures given show that the weight of the spleen, kidney, liver and lungs of a "Dwarf" weighing 350 lb. is almost double that of the same organs of a (young) Fulani animal of the same body weight.

Nymphomania often accompanies these cysts, but one can occur in the absence of the other. In nymphomania one usually finds catarrhal or muco-purulent endometritis or chronic cystic catarrhal endometritis. The cotyledons undergo degeneration and the cervix is the seat of sclerosis and stenosis. Douching with iodine solution, saline, chinosol solution, etc., has been recommended in treatment.

Tuberculous Metritis.—This has been encountered in 18 per cent. of tuberculous cows. It is rarely primary. The most common route of infection is the fallopian tubes from the infected peritoneum. Irregular œstral periods and nymphomania are noted, together with information gained by rectal examination. Affected animals should be killed.

Diseases of the Fallopian Tubes.

These exist in 15 per cent. of cases of permanent sterility. They are due to secondary invasion from some existing pathological changes in the genital tract or in the peritoneum. Tuberculous salpingitis is of common occurrence. For diagnosis rectal palpation is necessary.

Diseases of the Ovary.

Diseased conditions of the ovary are rarely primary, since they are usually found associated with, or as sequelæ to, inflammatory changes in the peritoneum, uterus or fallopian tubes. They exist in 60 per cent. of sterility cases. Often a microscopical examination is necessary to discover them. In cases of functional sterility the ovary is usually inactive. Occasional œstral periods may be observed; the interovulation period is unusually long. The ovary is small and firm and presents no trace of the Graafian follicle. In sterile females there are difficulties in ovulation; rare and at long intervals in functional sterility, absent in chronic metritis. With cystic degeneration of the Graafian follicles the signs of ovulation are, at the commencement, exaggerated, then the heats become nearly permanent and often border on nymphomania. Corpus luteum cysts and persistence of this body bring about sterility.

Pathological Conditions of the Ovaries.

Aplasia—congenital, rare and of little importance.

Neoplasms—rather rare.

Ovarian cysts :—

(1) *Small Cystic Degeneration.*—The ovary appears œdematous and is invaded by several little cysts, which may even be microscopic. They are usually situated centrally.

(2) *Cystic degeneration of the Graafian Follicle.*—This is the most important degeneration attacking the ovary. The immediate cause is most likely infection gaining entrance to the ovary *via* the ruptured ovi-sac, the lymph stream or, in some instances, through the unruptured surface of the ovary. *B. abortus, B. pyogenes, B. coli* and streptococci and staphylococci have been encountered but, in addition, many cysts are sterile. The cysts may be simple or double and of variable size. The ovary is hypertrophied, soft and compressible. Slowly the ovarian tissue atrophies. The contents of the cyst are clear or yellowish, sometimes opaque. The presence of cysts usually brings about nymphomania, and sometimes sterility. Prognosis is always grave. Treatment consists in rupture of the cysts by manual pressure, by rectal and vaginal palpation. Intravenous injections of corpus luteum extract should be given twice weekly. Ovarian massage should be carried out each week. Ovariotomy may have to be resorted to.

(3) *Cysts of the Corpus luteum.*—These are divided into two categories, those which develop at the formation of the corpus luteum, *i.e.*, in the first few days after ovulation, and those which develop following the non-rupture of the follicles. The corpus luteum is soft and large and fluctuating. There is often co-existent inflammation of the pavilion and salpinx. The heats become more and more rare and re-appear only when the body is entirely destroyed. The walls of the cyst are thin and the contents a clear or yellowish liquid. Prognosis is serious. Treatment consists in antiseptic uterine irrigations, followed by attempts to rupture the cyst by pressure and the injection of ovarian extract. One may have to have recourse to ovario-salpingectomy.

Persistence of the Corpus Luteum.

Some workers consider this is due to some disturbance in the secretion of ovarian hormones; others that it is dependent on uterine infections. It would appear that infection is the true cause, because one always finds as history: abortion, retained placenta or metritis. Retained bodies are always situated deeply.

In diagnosis one should note the disappearance of the œstrum and should make frequent ovarian palpations. Treatment consists in uterine irrigations and ovarian massage followed by pressure on the ovary. Ovarian extract should be administered.

Indurations.—These are rare and always connected with a prior infection. The ovary is fibrous and atrophied, the surface being roughened.

J. H. M.

[Contributions to the Study of Bang Infection of Cattle.

(1) Infection Experiments in Cows. Schumann and Lerche, *D.T.W.*, 1930, 38, 50, 789-797.]

One can artificially infect cows as much by oral as by subcutaneous administration of *B. abortus* (Bang). Only non-pregnant cows should be injected with living culture, but the inoculation a few weeks prior to service is not without danger.

Abortion is a symptom of the disease—a five months' pregnant cow was infected *per os* with the contents of an infected fœtal stomach; it carried to full time, but the placental membranes and later the milk contained Bang's bacillus. In another experiment a heifer was infected, carried to full time and *B. abortus* was isolated from the membranes.

Signs of approaching abortion may be observed as much as nine days prior to the act, *e.g.*, the pelvic ligaments slacken, the vulva swells, a vaginal discharge appears and the udder enlarges. However, these signs may manifest themselves and then pass off and the cow calve at the normal time.

B. abortus is usually found in the membranes, in the fœtus and the uterine discharge, but can also be isolated from the placenta of non-aborting cows. *B. abortus* may also be excreted in the milk and this can occur in animals inoculated with living culture prior to conception.

The artificial administration of *B. abortus* results in the formation of antibodies in the serum. These are demonstrable at a much earlier date after subcutaneous than after oral administration. If infection, with localization of the organism in the uterus and udder, results from the artificial inoculation of Bang's bacillus, the antibodies (agglutinin and amboceptor) persist in the blood; if a localizing infection is not set up the agglutinin and later the amboceptor titre diminishes.

It has also been shown that the giving of living culture may result in an intermittent fever; in one cow infected *per os*, a daily evening rise of temperature was observed, diminishing 14 days after infection.

. . . . . .

[(2) Experiments with Mixed and Individual Milks for *B. abortus* (Bang), *D.T.W.*, 1930, 38, 51, 808-813.]

To obtain some knowledge of the presence of Bang's bacillus in mixed milks 1,265 samples were examined. Of these 278 were positive. A questionnaire was sent to the farms concerned, asking for information *re* the presence or absence of contagious abortion; 187 answers were received. Investigations were now conducted, with results as follows.

(1) In herds, in which abortion had previously been prevalent, *B. abortus* was found in the milk even when the last clinical manifestation of the disease occurred seven years formerly. These carriers may be found amongst cows which have never aborted. The mixed milk of such a herd contains Bang's bacillus. Cows serologically positive and excreting the organism *via* the milk may be found in herds in which contagious abortion has never been observed. Thus, in apparently clean farms, the mixed milk may, occasionally, contain Bang's bacillus. In two farms, from the mixed milk of which the organism was isolated, abortion broke out respectively three and six months after the milk investigation. In two herds, the cause of the outbreaks would have gone unexplained, but for the isolation of Bang's bacillus in the mixed milk. In a few instances, serologically positive reactors cannot be found in spite of the presence of *B. abortus* in the milk.

(2) In a herd in which, within two years, only seven cases of abortion occurred, *B. abortus* was isolated from the milks of 18 out of 31 examined. Of 10 cows which were serologically positive soon after the outbreak of the disease, only three aborted. One cow which did not calve prematurely, contained *B. abortus* in the afterbirth, and later in the milk and yet was negative to the agglutination test. The examination of the membranes of the remaining normal calving cows was negative.

(3) Of 51 serologically positive cows which had aborted 49 per cent. were harbouring *B. abortus* in the milk. Of 19 serological positive cows which had never aborted 52·9 per cent. contained Bang's bacillus in the milk.

J. H.M.

The Highland Hundredth Show.

The prize schedule and regulations for the hundredth show of the Highland and Agricultural Society, to be held on June 23rd-26th, now issued, sets forth very handsome inducements to intending exhibitors. The total amounts to nearly £10,000—to be exact, £9,541—including the medals to be presented by the President, the Prince of Wales. In order fittingly to mark the unique occasion, the Society's prize-money has been practically doubled, and each of the breed societies has also offered special awards to encourage as worthy a display as possible.

N.V.M.A. Divisional Reports.

Lincolnshire and District Division.

Annual Meeting at Grantham.

The self-imposed duty of maintaining this old-established veterinary society as a separate entity has of recent years presented formidable difficulties to a few loyal and devoted adherents, but these may well take heart of grace from this year's highly-successful Annual General Meeting, which was held at Grantham on February 12th.

For this encouraging commencement of the activities of 1931 the Division owes much to its retiring President, Mr. E. Porter-Smith, who not only industriously augmented the membership of the Society during his year of office, but, not content merely to fulfil the customary duties of his position, came forward at his valedictory meeting as President with a most interesting and practical contribution, on a subject of real importance to his fellow practitioners: "Pneumonia in General Practice." Mr. Porter-Smith's highly-successful effort as an essayist on professional topics was ably seconded by a most valuable recent recruit to the Society in Mr. J. W. Beaumont, of Louth, who opened the discussion in a masterly manner. Altogether, therefore, a truly encouraging afternoon was spent, and as a result, Mr. Porter-Smith's successor in the chair, Mr. George Lockwood, of Peterborough, should be ensured the support not only of satisfactory attendance, but of strong accession to the membership during his term of office. In the latter connection, is it too much to hope that the efforts of the officers of the Division may be furthered by the co-operation of some members of the profession, resident within the recognised area of the "Lincolnshire and District," who have withheld that co-operation hitherto, while extending it to veterinary societies further afield?

The retiring President (Mr. C. Porter-Smith) occupied the chair, and the other members present were Captain J. W. Beaumont, Captain K. J. S. Dowland, Mr. G. Eaton, Major T. Hicks, Messrs. A. D. Lalor, J. H. Poles, R. T. Sheppard, F. H. Sugden, R. Swaby and H. C. Reeks (Hon Secretary).

The receipt was announced of apologies for absence from Captain T. B. Bindloss, Messrs. W. W. Grasby, F. L. Gooch, J. T. Holmes, Professor James MacQueen, Messrs. W. Runciman, H. P. Standley, Major C. W. Townsend and Mr. F. W. Watchorn.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read and were confirmed, on the proposition of Mr. Poles, seconded by Major Hicks.

Obituary.—The Hon. Secretary reported the death of a recently-elected member in Mr. J. H. S. McKie, of Spilsby, who, he added, had taken over the practice of the late Mr. J. Caldwell, a member of old standing who retired last year.

Election of Officers.

President.—The retiring President said that he desired to exercise his privilege of nominating his successor in the Chair and it was his desire, and that of his fellow officers, that an invitation to accept the presidency should be

extended to Mr. George Lockwood, of Peterborough. Though he was unfortunately unable to attend that day, Mr. Lockwood was a regular attendant at their meetings and one who played a very useful part in the life of the Division. Moreover, the new President would probably be called upon to attend meetings at Norwich in connection with the forthcoming Congress of the National Veterinary Medical Association, and Mr. Lockwood was handily placed, at Peterborough, for such attendance.

Mr. Poles seconded the proposition, which was carried unanimously.

Vice-Presidents.—The retiring President, Mr. F. L. Gooch and Mr. J. H. Poles were elected as Vice-Presidents of the Division.

Hon. Secretary and Treasurer.—From the Chair, Mr. Porter-Smith proposed, amid applause, that they request their Hon. Secretary and Treasurer, Mr. H. C. Reeks, to continue in office. During the past twelve months Mr. Reeks had placed the Society even more than usually in his debt by the excellence of the papers and demonstrations he had secured for their meetings within that period. His work as Hon. Secretary and Treasurer over what was now a very considerable period needed no commendation—it deserved and would, doubtless, secure the recognition of Mr. Reeks' re-election to the important posts held by him—but he did feel that they owed him a special vote of thanks for providing some of the best material in the way of papers and demonstrations that any Association could possibly have. (Applause.) Personally, he thought that the best he could do to show his appreciation to Mr. Reeks for the excellent fare the latter had provided during his (the President's) year of office, was to offer to give a paper at that meeting if nothing else was forthcoming. (Hear, hear.) They could not do better than keep Mr. Reeks in office for as long as he was willing to serve them. They offered him their gratitude for what he had done for that Association.

The re-election was made with acclamation, and Mr. Reeks returned thanks in suitable terms.

Elections to Membership.—Mr. J. W. Beaumont (Louth), Mr. R. T. Sheppard (Lincoln), and Captain R. J. S. Dowland (Lincoln), were unanimously elected as members of the Division.

Paper.—The President (Mr. E. Porter-Smith) now rose to present his paper on "Pneumonia in General Practice," which he introduced by saying that he should not have attempted the task had he not known that they possessed some excellent practical men in their Association whose contributions in discussion would, he was confident, prove of considerably greater value than the paper itself. He had not had time to make exhaustive reference to text-books; in fact, he had just given them notes he had had the opportunity of writing on the subject at odd moments, and if the members would note his omissions, these would be of considerable value in the subsequent discussion.

[The President's paper, and a report of the discussion (opened by Mr. Beaumont) appear at the commencement of this issue of the *Record*.—Ed.]

Mr. Hicks subsequently proposed a very hearty vote of thanks to the President for his paper, and also for the very able way in which he had conducted himself in the chair, not only at that meeting, but throughout his year of office.

The proposition was seconded by Mr. Poles, who observed that not only had Mr. Porter-Smith made a very good President, but he had given them a most instructive paper and one which had been beneficial to everyone present that day.

The President acknowledged the compliment of the enthusiastically-accorded vote of thanks, in which, he had no doubt, they also would desire that Mr. Beaumont should be included. (Hear, hear.)

In preparing and presenting the paper it had been his hope that he might create a discussion amongst minds possibly younger and more agile than his own, and he thought that his primary object had been achieved.

As many of the members as could stay, subsequently enjoyed the President's hospitality at tea.

H. C. Reeks, *Hon. Secretary.*

Southern Counties Division.*

Veterinary Films at Christchurch.

The winter meeting of this Society was held on Friday, January 30th, at the residence of Major E. S. Martin, Magnolia House, Christchurch, when the agenda included an interesting cinematograph demonstration by Professor G. H. Wooldridge, F.R.C.V.S., of the Royal Veterinary College, London. The President, Captain H. C. Rockett, of Salisbury, occupied the chair, and the others present included, in addition to Professor Wooldridge: Major E. S. Martin, Miss Cust, Mr. W. Caudwell, Mr. J. Facer (Hon. Secretary), Mr. R. E. Klyne, Mr. J. H. Ripley, Mr. J. S. Wood and Mr. J. B. White, with Mr. R. Isherwood (visitor).

Apologies for inability to attend were announced from Colonel Simpson, Dr. Sheather, Messrs. G. N. Gould, H. Edie, C. Pack, E. Whitley Baker and J. B. Tutt.

The minutes of the previous meeting at Tidworth were submitted by the Hon. Secretary and confirmed.

The Hon. Secretary read a notice of the Sanitary Institute Congress at Glasgow next July and it was agreed that the question of sending a delegate should be considered at the annual meeting.

National Horse Association of Great Britain.—The Hon. Secretary also submitted a letter and report from the National Horse Association soliciting a renewal of the Society's annual subscription for the current year.

Commenting on this letter, the President said he had no doubt their finances would permit of them doing this if it was thought desirable, but he suggested that they had better consult their Hon. Treasurer first, or they could let it stand over till the next meeting.

Mr. Facer said he could not help feeling it was a waste of money, for the reasons he had stated before.

Professor Wooldridge, however, remarked that if horses were to be retained on the roads for commercial purposes, as they certainly were in the big towns, it was essential to show that they could be run much more economically than motor traction. Some important work in this direction was being done by the National Horse Association, and the results had been carefully considered by a number of commercial firms who had, in consequence,

* Received on February 20th.

reduced the number of their motor vehicles and definitely increased the number of their horses. Work such as that Association was doing could not be carried on without the provision of the necessary funds and it was felt by some of the other veterinary societies that their support might be distinctly helpful. They might not be able to say that it would affect their own individual practices, but it was the profession generally of which they had to think, and this was a point they wanted to bear in mind when deciding whether or not they would subscribe.

The President remarked that they had supported the Association previously by sending a small subscription and he was in favour of doing so again, but he thought they ought to have some statement as to the position of their finances first. He would suggest that they inform their Hon. Treasurer that if their funds permitted they were agreeable to the subscription being renewed for another year.

Mr. Martin proposed that this be done and, Mr. Wood having seconded, it was agreed to *nem. con.*

Obituary.—The next business on the agenda was Professor Wooldridge's cinematograph demonstration, but before calling on him, the President said he was sure they would all like him to offer their condolences with Miss Cust in her recent sad loss. He thought they should also send a message of sympathy to the widow of Major Porteous.

Miss Cust expressed her thanks to the President and the members for their sympathy, and, with regard to the death of Major Porteous, the Hon. Secretary mentioned that he went down to see Mrs. Porteous at the time and he took the opportunity then of conveying the sympathy of the Society with her in person.

X-Ray Exhibits and Cinematograph Demonstration.

Professor G. H. Wooldridge was then invited to proceed with his cinematograph demonstration, and this, he explained, was designed to illustrate the advantage with which the cinematograph could be used for educational purposes, a fact which must be fairly obvious, for one must have often felt during the course at College that there were many things one would like to see but there were no suitable cases at hand when the subject was being dealt with. Before proceeding with the demonstration, however, he thought it might interest them if he showed them a series of X-ray photographs. They would possibly be as instructive as the cinematograph, because they not only showed the advantage to be obtained from the use of the X-ray, but they also indicated the extent to which one might easily be misled from time to time in regard to them if they relied on the radiograph diagnosis alone. With regard to the advantage to be obtained from the use of the X-ray in the case of fractures, to take one instance, there was no difficulty in diagnosing their presence, but it might often be very difficult to diagnose the actual extent of the fracture. The photographs he had brought with him would also enable them to see how, in some cases of complicated fractures that might appear hopeless, good results would follow. The photographs he had brought with him that day included two examples in which the fractures, as disclosed by the X-ray, would, he felt sure, have been considered by most of them to be absolutely hopeless, but in which, as a fact, good recoveries were made. In one of these—a fracture of the femur of a greyhound—they would see that the two ends of the bone were very widely separated and overlapping as the result of muscular contraction, and he thought most of them would have said that in this case it was hopeless to get any union of the fractured limb, but this particular puppy made a complete recovery as far as the lameness was concerned. He had brought this particular photograph down to show them that even when they had got a fracture revealed to that degree, they need not necessarily go to the length of destroying the animal.

Replying to a question by Mr. Klyne, Professor Wooldridge said the treatment in this case simply consisted of a restriction of movement with plaster charge and nothing else.

His second specimen, Professor Wooldridge went on to say, consisted of three photographs of the tibia of a dog of terrier size. As they would see, the leg was bent at an angle of no less than 60 degrees and the fractured bone was not only displaced and overlapping in that direction, but there were long splinters of the bone separated some distance from the shaft of the bone. The second and third photographs, which were taken at intervals of a fortnight, showed the progress that was made, and in this case also the dog made a complete recovery and was able to run perfectly sound on the hind limb.

Other photographs handed round by Professor Wooldridge for the inspection of the meeting included X-rays of two dogs suffering from injuries to the hip, a case of paralysis of the tail of a dog, and one of the presence of foreign bodies. The foreign bodies were pieces of a "sorbo" ball and of an ordinary india-rubber ball, and Professor Wooldridge pointed out that in this case the X-ray was absolutely misleading, because there was no trace whatever of the sorbo ball and the presence of the piece of ordinary rubber was only indicated by a shadowy patch. "I have had a fairly long experience now," he added, "and I do not rely entirely on the radiograph to diagnose the cause, but I trust my own judgment far more."

The cinematograph demonstrations included two typical examples of lameness in the horse, a case of lameness in a dog, one of radial paralysis, another of an operation for hernia in a dog, performed by Professor McCunn, and a series of clinical cases.

At the conclusion of the demonstration, the President said he was sure they would all wish him to convey their thanks both to Professor Wooldridge and to Major and Mrs. Martin for their kind hospitality.

Mr. J. Facer seconded this and it was at once carried by acclamation.

Professor Wooldridge, in reply, said he had been only too pleased to have had the opportunity of coming down there and showing them what could be done by means of the X-ray and the cinematograph. He also wished to acknowledge his own indebtedness to Mr. Southern for manipulating the projecting instrument.

Major Martin, in replying to the vote of thanks to himself and his wife, remarked that they had been only too pleased to welcome them and his only regret was that more had not been present to take part in what had been a most interesting and instructive afternoon. Major Martin also mentioned, in connection with their next meeting (which would be the annual meeting) that Professor Hobday had kindly invited them to go up to the Royal Veterinary College.

J. Facer, *Hon. Secretary.*

In Parliament.

The following questions and answers have been recorded in the House of Commons recently :—

Tuberculosis (Cattle).

Sir A. Sinclair asked the Minister of Agriculture whether his attention has been drawn to the experiments which have been conducted in England with the Spahlinger and Calmette vaccines; and whether he is framing any plans on these or other lines for the eradication of tuberculosis from Scottish herds?

Dr. Addison: My attention was drawn to this matter by Captain Richard Buxton, who presented me with a summary of the report of experiments carried out by M. Spahlinger on a farm in Norfolk. I have suggested to him that in the interest of all concerned there should be a complete test by and under the independent control of recognised authorities who are experienced in research in this disease. Research work is being actively carried on at the Research Institute of Animal Pathology, Cambridge, and at the Ministry's Veterinary Laboratory, Weybridge, with a view to devising an effective and cheap method of immunising cattle against tuberculosis. The Calmette and other methods are being studied. Future plans depend to a large extent upon the result of research work now in progress.

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Foot-and-Mouth Disease.

Mr. Day asked the Minister of Agriculture the number of fresh cases of outbreak of foot-and-mouth disease that have been confirmed by his Department during the six months ended to the last convenient date; and whether it has been possible to identify the origin of the initial cases in any of these centres?

Dr. Addison: Ten cases of foot-and-mouth disease, distributed between six separate centres, have been confirmed by the Ministry during the six months ended February 26th last. In none of the initial cases was it possible definitely to identify the origin of infection.

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Vivisection (Dogs).

Mr. Freeman asked the Home Secretary whether he has any record of the number of dogs used for the purpose of vivisection; and, if so, how many were so used in the last known year?

Mr. Clynes: The answer to the first part of the question is in the negative: the second part therefore does not arise.

Mr. Freeman asked the Home Secretary the number of dogs used for purposes of vivisection under the licences held by any of the officers of the Royal Veterinary College for the last known year?

Mr. Clynes: No dogs were used for this purpose at this registered place in 1930.

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Grey Squirrels.

Mr. Ramsbothom asked the Minister of Agriculture whether, in view of the growing danger from grey squirrels, as set out in the literature issued by his Department, he will suggest to the different local authorities the desirability of offering a reward for each grey squirrel killed in its area?

The Minister of Agriculture (Dr. Addison): I understand from my right hon. Friend the Minister of Health that local authorities have no power to offer rewards such as the hon. Member suggests. I am, moreover, advised that the experience of this and other countries in connection with other pests indicates that such a method of securing the destruction of grey squirrels would probably prove unsatisfactory, and would be liable to abuse.

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Wild Birds Protection Act (Prosecutions).

Mr. Gordon Macdonald asked the Secretary of State for the Home Department if he will state the number of prosecutions that have been taken under the Wild Birds Protection Act during the year ended December 31st, 1930, along with the number of convictions that have resulted therefrom?

The Under-Secretary of State for the Home Department (Mr. Short): Particulars for the year 1930 are not available, but the figures for 1929 will, with my hon. Friend's permission, be circulated with the Official Report.

Following are the figures :—

During the year 1929, 231 persons were proceeded against in England and Wales for offences against the following Acts :—

Wild Birds Protection Acts, 1880 to 1908.
Sand-Grouse Protection Act, 1888.
Protection of Birds Act, 1925.
Protection of Lapwings Act, 1928.

The results were as follows :—

Convicted (and fined)	176
Charge proved and Order made without conviction	38*
Discharged	17
	231

* This number includes 17 persons reprimanded and discharged on payment of costs under Section 3 of the Wild Birds Protection Act, 1880.

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Horses (Import).

Sir R. Gower asked the President of the Board of Trade how many horses and ponies have been imported into this country from foreign countries during the years 1928, 1929 and 1930 respectively, and the respective countries from which such horses and ponies, respectively, have been exported?

Mr. W. Graham: The following table shows the total number of horses (including ponies) imported into the United Kingdom during the years 1928, 1929 and 1930, and consigned from foreign countries, distinguishing the principal countries whence consigned. Separate particulars for horses and ponies are not recorded in the trade returns of the United Kingdom.

Countries whence consigned.	1928.	1929.	1930.
	No.	No.	No.
Iceland	429	309	179
Poland (including Dantzig ...	484	380	425
Germany	236	670	400
Netherlands	321	274	188
Belgium	177	130	110
France	17	223	349
United States	194	213	212
Argentine Republic	106	96	102
Other Foreign Countries ...	27	26	68
Total Foreign Countries ...	1,991	2,321	2,033

Note.—The figures for 1930 are provisional.

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London Traffic Regulations.

Mr. Day asked the Minister of Transport whether he can now give any further details with reference to the prohibition of certain classes of slow-moving vehicles, including those drawn by horses or other animals, in Oxford Street or other West End centres.

Mr. Herbert Morrison: Full details of the proposals regarding the prohibition of slow moving vehicles in Oxford Street are contained in the draft London Traffic (Oxford Street) Regulations, 1931, of which I am sending my hon. Friend a copy. Notice of my intention to make these Regulations has already been given in the *London Gazette*.

Sir William Mitchell-Thomson: Can the right hon. Gentleman say when the regulations will become operative?

Mr. Morrison: I think that a period of 40 days is allowed to elapse for the making of representations.

Captain Gunston: Will the right hon. Gentleman explain what the expression " or other animals " means? Does it refer to the patient oxen?

Lieut.-Commander Kenworthy: Asses.

N.V.M.A. Congress at Norwich, August 22nd-28th.

List of Recommended Hotels.

Norwich Hotels.

Maid's Head and Royal Hotels.—18s. 6d. single and 36s. double rooms per day. These are special terms for those attending Congress. *Accommodation*: Maid's Head, ten single and six double rooms. Royal Hotel, 25 single and 12 double.

Lansdown Private Hotel, Thorpe Road.—Terms: £3 3s. per week. *Accommodation* for ten.

Annesley Private Hotel, Newmarket Road.—Two to three guineas per week or 12s. 6d. to 14s. 6d. per day. *Accommodation*: five double and 12 single.

"Heathcote," Unthank Road.—£4 4s. per week single; £3 15s. per week double; 12s. 6d. per day. *Accommodation*: 14 single or double.

"Evening Hill," Cambridge Street.—£4 4s. per week single, inclusive; £6 6s. per week double, inclusive. *Accommodation*: 20.

Wroxham (seven miles from Norwich).

Keys Hill Hotel.—£1 1s. per day or 12s. 6d. bed and breakfast (unlicensed).

Great Yarmouth (21 miles from Norwich).

Queen's Hotel.—Double rooms, 18s. to £1 1s. per head; single rooms from 17s. 6d. These are special inclusive terms for a stay of not less than four days.

Victoria Hotel, Marine Parade, South.—17s. 6d. per day and from £5 15s. 6d. per week.

Gorleston-on-Sea (23 miles from Norwich).

Cliff Hotel.—£1 1s. per day; £7 7s. per week.

Pier Hotel.—From £5 5s. per week.

Lowestoft (27 miles from Norwich).

Hotel Victoria.—£6 6s. to £8 8s. per week.

Esplanade Hotel.—£4 4s. to £6 6s. per week; 15s. to 18s. per day (unlicensed).

Cromer (22 miles from Norwich).

Marlborough Hotel.—£5 5s. to £7 7s. per week.

Hotel de Paris.—From 7s. 6d. single and 14s. double bedrooms. Breakfast, 3s. 6d.; luncheon, 4s.-4s. 6d.; dinner, 6s.-6s. 6d.

H.M. Stationery Office Publications.

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and '28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net.	Post Free.
	s. d.	s. d.
Labour, Ministry of:—		
Choice of Career Series:—		
3.—Veterinary Surgery. Revised edition, February, 1931 (36-9999) ...	0 2	0 2½
Command Papers:—		
[3785.] Medical Research Council, Report for the year 1929-30	2 6	2 8

The U.S.A. Bureau of Animal Industry report for 1908 showed 400,008 cattle tuberculin tested by federal and state officers with 37,000 reactors, 9·25 per cent. Lesions of tuberculosis were found in 93·39 per cent. of the reactors slaughtered.

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

March 16th.—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, W.C.1, 4.30 p.m.

March 19th.—Annual General Meeting of the Western Counties Division, N.V.M.A., at Exeter.

March 26th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Carlisle.

Aug. 22nd-28th.—N.V.M.A. Congress at Norwich.

Professor James Macqueen.

It is with feelings of the greatest possible pleasure and relief that we inform our readers of the completely successful outcome of the second—and more serious—operation upon Professor James Macqueen, the immediately impending performance of which we notified in our issue of last week. The operation was carried out, on Sunday last, at the Hampstead General Hospital, and we understand that all immediately concerned therewith are entirely satisfied with the results achieved and with the progress that Professor Macqueen is making. Some time must necessarily elapse before our venerated ex-President is "out of the wood," but we rejoice that there is now every prospect that he will be restored to a full measure of health and strength. We desire to extend, on behalf of the whole profession at home and abroad—where Professor Macqueen's name is equally a veterinary household word—our heartfelt congratulations to the Professor and his family on the prospect of an early and happy termination to a long period of anxiety.

Royal Veterinary College Carnival.

Successful Effort for Out-Patients' Department.

We hope, in our next issue, to give a detailed description of the Carnival to raise funds for the Poor Out-patients' Department of the Royal Veterinary College which was held on March 5th. Starting from Prince of Wales Road, Kentish Town, a procession of gaily decorated horse-drawn and motor vehicles followed a route of nearly nine miles of main roads to Tufnell Park.

The procession was a mile in length; it had five bands, a great variety of fancy costumes and fantastic "animals," and included among the vehicles were the emblematical car shown by the Farriers' Company in previous Lord Mayors' Shows, a tableau of 18th century students of the Royal Veterinary College, and a tableau showing how a veterinary shoeing forge is conducted in Africa. There were prizes for the best fancy costumes and for the best turned-out horses and vehicles.

Students from the College, including many who have come from abroad, collected from the large crowds who

lined the streets, and (to quote *The Times*) " the readiness with which people contributed was an evidence of the sympathy with which the work of the College is regarded." The Out-patients' Department deals with an average of 12,000 cases annually of animals belonging to people who are unable to pay for the services of a veterinary surgeon.

As notified by Mr. Holmes, the Hon. Organiser of the Carnival, on page ii of this issue, the funds of the Department will benefit from the effort by some £700.

R.C.V.S. Obituary.

Douglas, Thomas Alexander, 81 Castlehill Road, Ayr. Graduated Glasgow, April 13th, 1880. Died March 8th, March 5th, 1931; aged 41 years.

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Macfarlane, William Henry, Conon Bridge, Dingwall, Ross-shire. Graduated Glasgow, May 29th, 1912; died, March 5th 1931; aged 41 years.

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Fearnside, J. A., Captain R.A.V.C. (T.F.) (retired), Ballachulish, Argyll. Graduated N. Edinburgh, May 19th, 1904; died, February 25th, 1931.

Concerning Captain Fearnside's death, the *Oban Times* of February 28th says:—" The community of Ballachulish and a wide district around received a shock when the news became known of the sudden death of Captain J. A. Fearnside, M.R.C.V.S., at the Ballachulish Hotel at an early hour on Wednesday morning. This intelligence was all the more startling in view of the fact that his death followed exactly a week after that of his wife, who passed away suddenly in the early hours of Wednesday, February 18th. On the day before his death Captain Fearnside had been in Oban on business, and he had also said goodbye to his brother on his return to England after attending the funeral of Mrs. Fearnside.

" Captain Fearnside, who was a native of Dewsbury, in Yorkshire, was a man of genial disposition, but quiet and retiring, devoting himself for the most part to his profession. Captain Fearnside was a member of the Royal Army Veterinary Corps, and prior to the War he was Veterinary Officer to the 4th Highland Mountain Brigade Royal Artillery (T.A.), which included the Argyll Mountain Battery. He mobilised with the Battery at the outbreak of war and went with them to Bedford. He was afterwards transferred to another unit, and saw service in both France and Egypt. He was awarded the Military Cross.

" The deepest sympathy has been extended to the young daughters of Captain and Mrs. Fearnside in their double bereavement."

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Mr. W. H. Macfarlane, M.R.C.V.S.

" It was with deep regret that news was received yesterday of the death in a nursing home at Inverness, on March 5th, of Mr. W. H. Macfarlane, M.R.C.V.S.," says the *Northern Star* (Dingwall). " He had undergone an operation there, but did not rally from its effects. Only a fortnight ago he was out and about at his business, apparently in the best of health, so that his death came as a surprise to his many friends. The late Mr. W. H. Macfarlane had a distinguished record as a veterinary student, and on the death of the late Mr. Gair, v.s., Conon, he acquired the practice and settled down there, extending his connections over a wider area. He was appointed V.S. for the Mid Ross District, under the County Council, and was V.S. for the burgh of Dingwall, discharging his various duties with efficiency and genial tact. He had a reputation as a skilled surgeon, and was very popular among the farming community. He was a notable sportsman, especially as a bowler and a curler, excelling in both. He was one of the crack players of the Dingwall Bowling Club, a frequent high scorer at its matches and winner of trophies, and was also one of the leading players in the teams of the Caberfeidh Curling Club. On the green, or on the ice, as in his professional and other associations, he was always genial and kindly—a sportsman in the truest sense of the term. He took a deep interest in the Boys' Club, and was an esteemed office-bearer of the Conon Church. His death is widely regretted, and the sympathy of many friends is extended to Mrs. Macfarlane and their two little girls."

During the War he joined up and served both in this country and in France in the Royal Army Veterinary Corps as Captain.

At the funeral, which took place in Inverness on Monday, March 9th, the following veterinary surgeons were present: Mr. Jas. Macfarlane, Glasgow (brother); Messrs. Wm. Logan and G. Begg, Inverness; Jas. Anderson, Keith; J. B. Russell, Elgin; Chas. McPherson, Board of Agriculture, and J. D. McLauchlan, Auchterhouse.

Foot-and-Mouth Disease.

The existence of foot-and-mouth disease on premises in the borough of Stafford was confirmed early in the week. The usual prohibition of movement order affects parts of the counties of Stafford, Derby, and Salop, including several important markets.

Licensing of Bulls.

When Professor J. A. Scott Watson lectured at Lowther, near Penrith, recently, on "Stock Improvement," he spoke strongly in favour of the proposed legislation regarding the licensing of bulls. He expressed the opinion that it had speeded up the rate of improvement in Irish cattle.

In the discussion which ensued, Mr. James Wood, who was the exhibitor of the champion beast at the Penrith Christmas fat stock show, referred to the improved quality of Irish store cattle, and this led to an interesting discussion. Professor Watson said it was a striking thing that at the Scottish sales of bulls of the beef breeds the Irish buyers paid 50 and 60 guineas for crossing bulls, whereas buyers for the Scottish Department of Agriculture were buying the 30 and 35 guineas bulls. If the better crossing bulls went to Ireland, it was common sense that there would be better progeny in the way of store stock.

Mr. Anthony Lowther, nephew of the Earl of Lonsdale, and Mr. J. Mounsey, the Earl's bailiff, both referred to the same thing happening at the Castle-Douglas sale of Galloways.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication

The Editor does not hold himself responsible for the opinions of his correspondents.

Dubbing of Poultry.

To the Editor of The Veterinary Record.

Sir,—I wonder what the poultry owners think of the attitude of our profession when they read about the above case, and especially as it is of national interest and consequently will be broadcasted in their papers? Your report is that Mr. Taylor of Oxford said that the birds ought to have been anæsthetised and the instruments boiled for ten minutes. This may be all right in theory and for Court evidence, but what is the charge going to be for such a simple operation? I wonder if he knows that boiling of instruments is going out of date and there are several hospitals now where they are just kept in a solution of " Milton," and where they are getting as good results as by the old method? Poultry keeping is a commercial undertaking, with very little sentiment attached to the birds, and therefore whatever is done for them must be on business lines.

If dubbing is cruel and the person who performs the operation is going to be prosecuted, then I, for one, cannot name any operation, no matter how simple—even the cutting of a dog's nails (because one often cuts into the sensitive parts)—that eventually will not come under the category of cruelty.

Did the veterinary surgeons for the prosecution ever think of the thousands of lambs which are castrated and docked every year without either anæsthetics or the boiling of instruments for ten minutes, and the thousands of pigs which are castrated under the same conditions as are sheep? May I inform them that I know a veterinary surgeon in Suffolk who castrated something like 270 pigs—both sexes—in one day. I wonder how much anæsthetic he used and how often he boiled his instruments? Moreover, did it never appeal to them that the nervous system of the bird is poorly developed, that it can stand 500 times as much tetanus as man? In my opinion, dubbing of a cock is one of the very smallest of operations performed on animals and if it were not for the hæmorrhage there would be nothing said about it. What about caponising? I have seen a farmer do 20 in the hour: are farmers going to be prosecuted—because, of the two operations, it certainly is the more painful.

Also, what about cats when castrated by the scraping of the cord method—surely that is painful, yet advocated and daily performed? The dubbing of poultry constitutes the limit in regard to all the prosecutions the R.S.P.C.A. have taken on, and now that they have been somewhat successful in it there will be no end to their activities in this direction: eventually, if you want to clip a horse or to pluck a dog you will have to use chloroform.

Another thing which appeals to me as being ridiculous is that you can perform any operation on an animal so long as you use some anæsthetic, yet never a word is said about the pain they endure during the process of healing. You can dock an aged dog or horse with an anæsthetic and not be prosecuted, yet they often take a month or six weeks to heal, whereas a bird's comb is healed in from seven to ten days, but that is "cruelty."

So long as we have veterinary surgeons who will support the R.S.P.C.A. in such cases, so long shall we be held in ridicule by the poultry man and lose our prestige.

Yours faithfully,

G. C. Lancaster, F.R.C.V.S.

Skipton,
March 7th, 1931.

Anæsthetising Fowls.

To the Editor of The Veterinary Record.

Sir,—Suggested by the recent case of "Dubbing of Poultry," it may be of interest to colleagues that, in connection with occasions demanding the administration of a general anæsthetic, Pearl and Surface ("The Use of Atropine Sulphate in Anæsthetising Birds for Surgical Experiments," *Jl. Am. Ass.*, Vol. 52, 1909, p. 382) point out that by the ordinary method of anæthetising birds for surgical work 90 per cent. will die under the anæsthetic if such be carried to the surgical stage. They also give as a not unlikely explanation of the above high mortality, the information that the air-sac system in birds provides for the storage of proportionately large quantities of the anæsthetic, which is wholly absorbed in a short space of time and not eliminated by expiration as in mammals.

The above writers assumed that the excess of anæsthetic caused cardiac inhibition by affecting the vagal centre; accordingly, to obviate fatal results, they gave 1/200 grain of atropine sulphate in 1 c.c. of warm saline solution, subcutaneously at the axilla; æther followed immediately, surgical anæsthesia being induced in from 15 to 20 minutes.

"Avertin" may prove a more faithful assistant.

Yours faithfully,

George Dykes, M.R.C.V.S.

202, Wedderlea Drive,
Glasgow, S.W.2.

The Editor acknowledges the receipt of the following:—

Reports of meetings of the Scottish Branch, N.V.M.A., and Scottish Metropolitan Division, N.V.M.A., from Mr. W. C. Miller, Hon. Secretary.

Report of meetings of the North Midland and Midland Counties Divisions, N.V.M.A., from Messrs. W. Tweed and H. J. Dawes, respective Hon. Secretaries.

Communications from Messrs. R. Hudson (Retford), R. Machin (Royal Veterinary College), O. Stinson (Appleby), J. F. D. Tutt (Winchester) and Lieut.-Colonel T. Dunlop Young (London).

Diseases of Animals Acts, 1894 to 1927.

SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.§		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16 to 28 Feb., 1931	14	15	—	—	7	7	19	42	26
Corresponding period in—									
1930 ...	11	11	—	—	12	20	21	96	27
1929 ...	23	26	2	259	16	30	19	43	12
1928 ...	22	24	8	701	18	81	25	64	19
Total 1 Jan. to 28 Feb., 1931	81	90	2	255	36	62	114	208	82
Corresponding period in—									
1930 ...	81	85	—	—	74	119	203	425	148
1929 ...	86	99	17	1,252	80	151	228	202	82
1928 ...	99	109	78	7,017	97	225	215	277	123